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MEMOIRS

OF THE

TORREY BOTANICAL CLUB

VOLUME X

HISTORY

OF

PRE-CLUSIAN BOTANY

IN ITS

RELATION TO ASTER

BY

EDWARD SANDFORD BURGESS

PUBLISHED BY THE CLUB
NEW YORK
1902

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STUDIES IN THE
HISTORY AND VARIATIONS OF ASTERS

PART I

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IN ITS

RELATION TO ASTER

BY

EDWARD SANDFORD BURGESS

ISSUED 22 NOVEMBER 1902

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PREFATORY NOTE

This first volume of Aster Studies is by limitations of size confined to the general historical treatment proposed — leaving the description of species to a volume soon to follow. The present volume traces the history of Aster to 1600, or through the continuance of the ancient monotype conception of Aster; that is, until Clusius' polytype conception came into full dominance as embodied in the series of Aster species set forth by him in 1601.

It has been my aim to present the history of Aster from the Greeks to Clusius in such a way as to show its relations to other botanical thought and writing, and to disentangle the constantly recurring confusions with other blended genera. This involves notice of all important plant-writers before Clusius, constituting this volume a sketch of the History of Pre-Clusian Botany.

Such a history will, I trust, be the more acceptable because it seems to be much needed in English, our language being as yet without any extended work covering this field. Future interest in this subject among English-speaking lovers of learning will some time no doubt become so great as to call forth a full and exhaustive history of the earlier botany. The present work is but a step toward such a desired consummation; but its plan has its advantages in the singleness of view gained by tracing one single aspect of the subject through the past.

In carrying out this plan, I have sought above all to turn on the light. I have therefore dwelt longer on many unfamiliar and almost inaccessible mediaeval writings than upon the better-known though earlier classics. With the rarer works I have added such simple bibliographic details as may be helpful to the inquirer; but without intending the fullness required by the bibliographic specialist. Where possible in these cases, I have mentioned the library where a copy may be seen in America; making much use of familiar abbreviations such as *MS.*, = manuscript; *ex. bibl. Colu.*, = from the library of Columbia University; *ex. libr. Bu.*, = from the library of the writer: etc., etc. Such citations may seem trivial to some, but not to those who have experienced with the writer the difficulty of getting access to a desired mediaeval work at the time wanted.

E. S. B.

NORMAL COLLEGE, NEW YORK CITY,
Sept. 6, 1902.

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INTRODUCTION

The genus *Aster* has been long admired for its beauty and diversity. No lover of quiet natural beauty but feels its lingering charm. Few plants bear their wealth of bloom with a more unconscious grace. No wonder that the all-expressing Greek should call the plant "the many-eyed." Its ministry is not alone to the outer but to the inner sense, making one say with Emerson

> Every aster in my hand
> Goes home laden with a thought.

The suggestions inspired by the variability of asters have a profound significance. The very quality which makes the genus so vexatious to the searcher after quick and certain definitions of species, makes it full of keenest interest to the student of variation. Variation—which is Nature—reaches a maximum development in Aster. This is true in two ways, for few species vary so insensibly into each other while in their unchanged native state; and few species are so rapidly modified under changed environment.

It was with these feelings that my studies of Aster were begun about 1886, and with the hope that continued observation in the field might bring a glimpse of nature in the very act of the variation process, I have sought to determine the respective variability of characters and to indicate what effects have been produced by environment. It is sometimes suggested that in Aster new species are being formed by development from the old with more rapidity than in most genera of the present. If there is even the possibility that this is actually the case, it follows that there is needed more than usual care and exactness in the limitation of Aster-forms as at present known, to aid comparative work in the future. That the genus should present extreme difficulties of classification is the natural result from its plasticity. Toward

their solution the foundation-work was admirably laid by Nees in 1832,* and for American species by Torrey and Gray † in 1841—together with comparisons made by Dr. Gray with European herbaria, results of which appeared in his Synoptical Flora, in 1884. There still remained the need of continuous field studies and of extensive collections of closely connected forms, and also of wide comparison of material already existing in American herbaria. The need of a further revision of the species of Aster was evident from the number of unassignable forms already existing in collections, from the number discoverable in the field, and from the experience of botanists, especially of that master of the Compositae Dr. Asa Gray, whose own judgment regarding the asters, made toward the close of his labors, was that "little satisfaction has been obtained as the result of prolonged and repeated studies." Nevertheless, he has laid a broad foundation, and requires at the outset the profound acknowledgment of any subsequent investigators. Some may say it is a rash undertaking to attempt subsequent limitation of species in Aster. It seems, however, that the great amount of work done since should be reported and systematized, even though the gaps and the lost trails are many. That the work I now present should leave much undone is inevitable. Nature herself has not yet said her last word in the genus Aster, and he will do well who can keep up with her progress.

It is, therefore, my present purpose to put on record such contributions toward the knowledge of the asters as my studies in the field and elsewhere during the last fifteen years have enabled me to make. I plan to make impartial mention of all forms seen, not omitting those imperfectly known. Their omission might be a gain in symmetry and might prevent some inevitable errors in interpretation of their relationships; but by mentioning even the obscurer forms their study in the future may be stimulated, and it is the advancement of knowledge which is the true aim of scientific study, rather than the symmetry of the immediate achievement. Many other forms as yet unknown will no doubt be discovered, especially when the further north and the mountains of the south

* C. G. Nees ab Esenbeck, "Genera et Species Asterearum." 1832.

† Torrey and Gray's Flora of North America, Vol. II., part 1. 1841.

shall have been made the subject of more detailed investigations. Meanwhile, I present the results so far reached, utilizing the evidence derived from thousands of specimens of my own collecting and from field studies ranging from Canada to Virginia, with particular concentration upon regions about the Potomac, about Lake Erie, the Massachusetts coast and New York City.

Many asters in the herbarium give but little hint of their original texture, or develop a new color in the pappus, or change in many other ways. My method has been, therefore, to make detailed field notes of characters as well as of conditions of growth. Many characters presented by early stages or by radical and lower cauline leaves, are lost at flowering time. I have therefore made it an especial object to secure the earliest spring growths and the intermediate stages.

Many asters have also seemed so variable that it has been questioned if the same rootstock would repeat the same characters at all in the growth of a second year. I have, therefore, kept the same plants under scrutiny for three successive seasons, sometimes for four years or more in succession, keeping certain sections under such repeated observation, including numerous localities near New York City; on Martha's Vineyard; near Newton, Mass., on the Charles River; in the White Mountains; in the Lake Erie region (at Niagara gorge; in the Cattaraugus Indian reservation; near Silver Creek, and near Dunkirk, N. Y.); also about the Potomac River.

Many courtesies have been received from the owners or curators of various herbaria examined. I desire hereby to make special acknowledgments also to those who have kindly made collections for me, particularly to Mr. E. P. Bicknell, who has generously placed at my service his extensive field collections made about New York City. Mr. M. L. Fernald has made similar collections for me about Orono, Maine, Miss Nellie F. Harvey about Castine, Maine, Mr. James B. Graves about Susquehanna, Pa., Dr. Charles A. Graves near New London, Conn., Prof. Albert A. Ruth about Knoxville, Tenn., Miss Caroline A. Ripley in Missouri and Kansas, Mr. Charles Mohr in Alabama, and Mr. C. L. Beadle in North Carolina.

To the foregoing and to those who have sent me lesser con-

tributions, and to the curators of the herbaria to be enumerated, I desire hereby to make particular acknowledgment, not forgetting the courtesies also received from Dr. George Vasey and Dr. Sereno Watson in the past, and the aid received from Prof. T. C. Porter by consultation with his valuable herbarium before the lamentable fire of 1898.

I also owe especial acknowledgment to Dr. Edmund A. Baker of the British Museum, for comparing in my behalf the Gronovian herbarium, to Dr. L. M. Underwood for furnishing similar comparisons in the Willdenovian Herbarium at Berlin, and to the late Mons. A. Franchet and to the artist Miss Ida L. Miner, for comparisons and drawings from the Michaux herbarium and others in the collection of the Jardin des Plantes at Paris.

I also desire to commend the fidelity and care with which Miss M. E. Baker (Mrs. C. D. Henline) of New York City has executed for me the drawings which illustrate fourteen of the Biotian species or varieties.

Larger herbaria collated include :

Cambridge, Mass., Herb. Gray, including part of that of Nees, and Herb. Klatt.

Cambridge, Mass., Herb. Walter Deane.

New York City, Herb. Columbia University, including Herb. Torrey and Herb. Meisner.

New York City, Herb. N. Y. Botanical Garden, including Herb. Gibbes and others.

New York City, Herb. N. Y. College of Pharmacy, including Herb. Canby.

New York City, Herb. Torrey Botanical Club.

Albany, N. Y., Herb. N. Y. State, in charge of Prof. C. H. Peck.

Buffalo, N. Y., Herb. Buffalo Society of Natural History, including Herb. Clinton.

Philadelphia, Pa., Herb. University of Pennsylvania.

Philadelphia, Pa., Herb. Philadelphia Botanical Club.

Philadelphia, Pa., Herb. Academy of Science, including plants of Schweinitz, Nuttall, Rafinesque.

Philadelphia, Pa., Herb. American Philosophical Society, deposited with the Academy of Science, including Herb. Muhlenberg, Herb. Pursh, Herb. Barton, Herb. Lewis and Clarke's expedition.

Easton, Pa., Herb. T. C. Porter, and his Herb. Pennsylvania.

St. Louis, Mo., Herb. Missouri Botanical Garden, including Herb. Bernhardi, Herb. Engelmann, Herb. Buckley.

Washington, D.C., Herb. U. S. Department of Agriculture, with Herb. L. F. Ward and Herb. H. W. Henshaw.

Lincoln, Neb., Herb. University of Nebraska.

Columbus, O., Herb. University of Ohio.

STUDIES IN THE HISTORY OF ASTERS

BRIEF SKETCH OF THE GENERAL HISTORY OF ASTER

In this sketch of the past history of the Asters, my purpose is to supply, first, a brief outline of the history of the genus as a whole, reserving the history of each individual species for separate consideration later together with its description. There was a long period before the definite limitation of species, when for perhaps 2,000 years Aster was thought of as a single entity. During that long period it is possible to treat the history of Aster as one. I plan also to present for that period a digest of the current beliefs and superstitions regarding Aster, with a summary of the related applications of the name, and a glance at other names applied to Aster. My plan is to consider serially each writer who had something to say about Aster, and to say enough of him to make his relations to the development of knowledge of Asters intelligible. The need of such explanations seems the greater because there is so little available in English relating to the history of botany before Brunfels. This part of the work becomes therefore a sketch of the history of Pre-Clusian botany in its relations to Aster.

I call it botany, not in the sense of botany as a science, but for lack of any other term to indicate plant-knowledge, however uncritical and however often merging into folklore. I call it Pre-Clusian, because Clusius' * descriptions of the plants of Spain in 1576 ushered in a new era in the definite limitation of species in Aster. The principal work available in English on the history of botany, Garnsey's translation of Sachs' History, begins substantially with Caesalpino, in 1583, and properly so, for that work is intended as a history of dominating botanical ideas. Caesalpino's greatness was not as a describer of Asters, but as a thinker, and as enunciator of the principles regnant in botany until Linnaeus. For accurate description of new Asters, however, as well as for

* Clusius, Charles de l'Escluse, 1526–1609, who explored parts of France, Spain, Portugal, Italy, Switzerland, Germany, Austria, Hungary and the Netherlands for new and rare plants, 1550–1587.

that of hosts of other plants, the turning-point was also nearly coincident in time, having just been reached in 1576 in the work of Clusius,—who had begun his botanical studies in 1550 and was searching for plants in the Alps as early as 1553 but who ripened his species well before publishing.

For the period before Clusius, Meyer's unfinished Geschichte der Botanik * is the well-known and masterly summary, and we can but regret that the life of the untiring author was cut off in the midst of his noble undertaking. Wherever possible I have used the authors themselves, seeking to make them tell their own story, using for this purpose besides my own library, that of Columbia University and of the N. Y. Botanical Garden, with aids from that of Prof. E. L. Greene, from the Astor library, etc. Next to the authors themselves I owe most to Meyer; and so far as they still remain serviceable, I have made use of Sprengel's Historia rei herbariae (Amsterdam, 1807–8), Winckler's Geschichte der Botanik (Frankfort, 1854), Lenz's Botanik in alten Griechen und Römern (Gotha, 1859), Billerbeck's Flora Classica (Leipsic, 1824), and a multitude of other works of more restricted field.

Aster as a plant name has long been in botanical use, its continuous history extending through more than 2,200 years. Its application, especially its limitation, has been more or less indefinite, but seems always to have included one pivotal species, the *Aster Amellus* of Linnaeus, the *Aster Atticus* of Dioscorides and of antiquity, the historic type of the genus, and a fairly early example, we may say, of a binomial plant name. This species presents the generic characters fairly well, but owes its early preëminence particularly to the fact that nature had produced it in abundance near that center of ancient culture, the city of Athens.

Identification of classical references depends largely on continuity of citation. Citation makes the *Asteriscus* of the Greeks a synonym of their *Aster Atticus*. It is in the form *Asteriscus* that the Aster makes its earliest appearance in written botany; disregarding for the present its still earlier probable appearance in medicine, as mentioned by Hippocrates in the previous century under the different name polyophthalmon. These are the earliest occur-

* In 4 Vols., Königsberg, 1854–1857, by Ernst H. F. Meyer.

rences known to-day, though the fortune of the papyrus-hunter may still unearth some one of the many antecedent references that doubtless once existed.

The mention of the *Asteriscus* occurs in the History of Plants by Theophrastus, the "father of botany," written perhaps about 320 B. C.; stating, book 14, chapter 13, of certain small taper seeds that they resemble those of the asteriscus but are more slender. His casual manner of reference indicates that the plant and its name were no new thing to the Greeks of that day. His use of the diminutive also suggests that the name in the positive form had been long familiar, for it is a mark of the senescence of a word's life that it should drop into the diminutive; like the use of *sub*acute for acute or Augustulus for Augustus.

Allusions by the Greek and Roman poets are the next references that have come down to us. They bring us the first surviving trace of the power of the asters to charm, in the tribute paid them by the Ionian poet Nicander, about 160 B.C., saying of his

ἀστέρα φωτίζοντα,

Whoe'er indeed you may be that may gather the luminous Aster,
Or pluck the Helenium, place them on the roadside shrines of the gods,—
Yea, even on the images wreath them, and that when first you behold them;
Pluck again and again these enchantments beautiful, and pluck the chrysanthemums,
And lilies, and lay them as garlands on the tombs of the weary at rest.

First to draw and paint the Aster seems to have been Cratevas the Greek herbalist, perhaps 100 B.C., whose custom was to paint figures of plants and write their names and properties to accompany each figure. Part of his credulous lore respecting the properties of his Aster has come down to us; the original figure, which doubtless accompanied it once, has long since perished; but something of its semblance after numerous copyings, probably still survives in certain illustrated manuscripts of Dioscorides.

Vergil, perhaps seventy years later, followed with the chief tribute which the Aster was to receive from Latin poetry, and Columella, after another seventy years, bestowed on it its chief tribute from Latin prose. Soon followed the great treatises of Dioscorides and Pliny, the Greek physician and the Roman naturalist writing at nearly the same time, the Roman perhaps a dozen years the later, both including the Aster among their medical plants, and

Dioscorides furnishing the first and only description of much detail prior to the revival of learning.

We may therefore say that the first real description of Aster which has come down to us is that of Dioscorides, of date perhaps about 65 A.D. Subsequent appearances of Aster in the writings of nearly 1,500 years rest mainly on the basis of Dioscorides' description.

Monotypic Aster.—During the whole of Greek and Roman antiquity and during the mediaeval period prior to the revival of learning, only one aster (omitting Tripolium) was known to the consciousness of the race as expressed in recorded literature.

One, Aster remained essentially to those whose botanical labors were based primarily upon Dioscorides. Aster was still one entity to Brunfels * and Bock † and Fuchs ‡ in 1531—though a debatable entity, for which they were all groping to find the true prototype in nature. Aster seems still to have impressed Ruellius § as one in 1537, and Rivius || and John Lonitzer ¶ in 1543.

It was still one to his son Adam Lonitzer ** in 1557 when he issued his Kreuterbuch or herbal. Matthioli, the great commentator on Dioscorides, also treats *Aster* as one in his commentary; †† but before his death in 1577 he was constrained to admit a second *Aster*, his "*Aster Atticus alter.*" ‡‡

Polytypic Aster.—Meanwhile Fuchs and Bock had perceived the diversity of asters perhaps as early as 1539. They had turned from the exposition of Dioscorides to the exposition of

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* Brunfels' "Exegesis ... Simplicium Dioscoridae," page 29 of his "De vera herbarum cognitione,"—forming part of Brunfels' "Nov. Herbarii Tomus II.," Strasburg, 1531-2.

† Hieronymus Tragus' "Herbarum dissertationes," 157; in Brunfels' "De vera herbarum."

‡ Leonhard Fuchs' "Annotationes," 152-3; in Brunfels' "De vera herbarum."

§ Ruellius' "De natura stirpium libri tres," 633 (book 3, c. 126). Basle, 1537.

|| Ryff's "Annotationes" to Ruellius' Latin translations of Dioscorides, 345. Frankfort, 1543.

¶ Lonitzer's "Scholia" on Marcellus Vergilius' Latin translation of Dioscorides, fol. 67. Marburg, 1543.

** Lonitzer's Kreuterbuch, fol. 177. Frankfort, 1557.

†† Matthioli, Venice, editions 1544-60.

‡‡ Matthioli, editions 1563 and onward.

Nature. They had been rewarded and had made discoveries. To Fuchs, at some time it would seem between his Annotationes in 1531 and the edition of his Historia Stirpium* in 1549, and to Bock, between his Dissertationes, also in 1531, and his Kreuterbuch, which first appeared in 1539, there had come the perception that Nature has more than one species of *Aster* in store for the searcher.

Bock in his Kreuterbuch described two † asters by that name, one of which, his *Aster Atticus flore medio luteo*, is represented by the yellow chamomile, *Anacyclus aureus* L., common in southeastern Europe. The other, Bock's *Aster sed non Atticus*, proved to be so different a plant as herb Paris, *Paris quadrifolia*.

Bock had published his Kreuterbuch in 1539 without figures, but with very superior descriptions: a first edition now so rare that it is doubtful where a copy is to be found. It was three years later that Fuchs followed with the first figure of *Aster Atticus* since the revival of learning; its reduced copy was labeled *Aster Atticus purpureus* in Fuchs' edition of 1549 (figures only, the text being omitted; ex. bibl. Columbia). So he now termed his plant *Aster Atticus purpureus*, to make a distinction from another, the yellow species for a time called *Aster Atticus luteus Fuchsii*, which became the *Inula dysentericus* of Linnaeus.

Fuchs had probably been anticipated in recognition of a second species of Aster by Anguillara. This modest Italian, underestimated and abused by his countrymen, but inspired by a wonderful devotion to Nature, had spent years of travel and exploration in Greece seeking to find the plants of Dioscorides in their native soil. After returning to Italy he had been made in 1546 for a short time director of the botanical garden at Padua. Regarding Aster colors he had accepted the received and ancient text of Dioscorides as adopted in 1516 by Ruellius, denominating the flowers "purple *or* yellow." Dioscorides, if he used the expression *or* at all, probably meant that the flower could be called purple or yellow, according as it was designated from the rays or from the

* Fuchs' Historia stirpium, Basle, 1542, and onward.

† Besides these, Bock described under the name *Tinctorius Flos*, at least three other plants deemed Asters by his successors, one of which was the true *Aster Atticus* of Dioscorides (fide C. Bauhin) not recognized as such by Bock.

disk. Ruellius seems like those before him, to have taken Dioscoribes to mean " with flowers which are either purple or yellow, each color at different times," or " in different parts of the plant," or " in different situations,"—without involving the idea of the confusion of two species together, one yellow and the other purple. Anguillara, like Saracenus in 1598, seems to have considered Dioscorides' description a blending of two species, and while in Crete and in Corfu, at some time probably during the ten years preceding 1546, he satisfied himself that he had found their living representatives. One of these was published * from his notes in 1561 as "*Aster Atticus verus*"; it is the *Buphthalmum spinosum* of Linnaeus, the *Pallenis spinosa* of Cassini.

The combined effect of Fuchs' and Anguillara's influence was felt in the choice of Aster-types accepted by Conrad Gesner, who admitted the leading species of both as Aster Atticus. Writing his *De hortis Germaniae* in the winter of 1560, Gesner termed that of Anguillara, *Aster Atticus verus*, and that of Fuchs simply *Aster Atticus*. Editing Valerius Cordus together with his own work on German gardens the next year, 1561, Gesner makes Cordus appear † as recognizing three Asters, that of Fuchs (which Cordus had so identified as early as 1539,—perhaps first of any of his contemporaries to so identify it) which Cordus, as now edited prints as *Aster Atticus*, while two others, *Anthemis tinctorius* L., and *Anacyclus aureus* L., appear ‡ as his *Aster Atticus* also. But Valerius Cordus had been dead sixteen years, and these second and third asters may have been an accretion to his work after it came into Gesner's hands.

Gesner is perhaps the clearest example of early recognition of diversity among Asters; indeed he believed that there is no such thing in nature as a monotypic genus; after his death in 1565, four species of Aster were found figured or mentioned among his papers, two of which he had published as Aster in 1561.

* In Anguillara's Semplici, edited by his friend Marinello in 1561.

† Valerius Cordus' "Annotationes in Dioscoridis ... libros V ..., Historiae stirpium libri IV posthumi ..., et Sylva "—, edited by Gesner and including, as fol. 236–300 Gesner's " De hortis Germaniae." Rihel, Strasburg, 1561.

‡ Fide J. and C. Bauhin.

Matthioli had hitherto recognized but one Aster. He had just published the fine 1560 Latin edition of his commentary, with his figure of the "true blue" Aster and with another of a plant * which he was proving had been wrongly called Aster. But now in 1561 another appears at Strasburg, the yellow Aster of Anguillara and of Gesner, and in his edition of 1563 Matthioli promptly inserts it, under the name *Aster Atticus alter*, with a figure which was often repeated, by Bodaeus for instance, as late as 1644.

Meanwhile Clusius, making explorations in the same year, 1563, in Spain, had discovered, as he judged, a wholly different Aster, his *Aster Atticus supinus*,† which became afterwards known as *Buphthalmum maritimum* L., and later as *Asteriscus maritimus*, Moench.

Lobel, so long the friend of Clusius, followed close behind him in similar discoveries. Sojourning in France, at Montpellier, before 1566, and at Narbonne in the years immediately following, he recognized a difference between the asters at the two places. One aster ‡ at Montpellier had been the subject of observations by Clusius when studying plants there under Rondelet, in 1550. Two § at Narbonne may have been first pointed out to Lobel by his instructor at Narbonne, the otherwise little-known Petrus Pena. In 1570, when Pena and Lobel joined in publishing their *Adversaria*, they included in it five different asters.

Finally, in 1576, when in the same yeai Clusius made a beginning of publication of his discoveries, and when Lobel republished his *Adversaria* with its five || asters, and published two ¶ other asters in his new *Observationes*, the era of Aster as a genus of many

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* His *Stellaria*, our *Alchemilla*.

† Published in Clusius' "Rariorum ... per Hispanias, and in Lobel's "Stirpium observationes," both printed at the Plantin press, Antwerp, 1576.

‡ This was the *Pallenis spinosa* of Cassini, *Buphthalmum spinosum* L. Clusius called it in 1576, *Aster Atticus primus flora luteo;* in 1601 he republished it as *Aster Atticus legitimus*. Pena and Lobel in 1570 called it *Aster, sive Stella Attica Monspeliensium*, etc.

§ Pena and Lobel, *Adversaria:* 147 term these *Aster Italorum* and *Aster minor Narbonensium*, etc. The latter is *Aster acris* L.

|| The three just noted and also their "Aster montanus duplex" and their "Aster montanus alter"; being forms of *Inula montana* L.

¶ Lobel's "Aster Atticus supinus Clusii" and his "Aster conyzoides Gesneri"; *i. e.*, respectively, *Asteriscus maritimus* Moench, and *Buphthalmum grandiflorum* L.

species was fairly begun. These new Asters, so called, are of course not now included in the genus; the first of them that still remains so was perhaps *Aster alpinus* L., also published* by Clusius.

In the next year, 1577, occurred the death of Matthioli. He had begun as a maintainer of the unity of Aster; he had lived to see two species accredited to Aster by Anguillara, by Fuchs, and by Gesner, and then he had adopted a second species himself; he had outlived the discovery of others by Gesner, and had seen the number rise to seven in the "Observationes" of Lobel, by which time more than a dozen different plants had been figured under the name of aster.

With the passing away of the great commentator on Dioscorides, there had passed away forever the old preëminence of classic dictum. The center of gravity of aster studies had swung over into a new realm. Observation of nature, in the way of the addition of new species, was now the leading impulse, a new direction which in Aster seems to have been chiefly due to the stimulus imparted by Clusius.

Clusian Aster Species.—The genus grew up round the species; developing in the mind of the sixteenth century as if by crystallization upon the original Greek type as the formative point, newly discriminated forms appearing as "*Aster Atticus alpinus*," "*Aster non Atticus*," etc. For almost 200 years, descriptions of Aster species increased; Bobart, in 1699, completing Morison's "Plantarum historiae," enumerated 48 species; Tournefort, in 1700, enumerated 52. Most of these species were European; the student of American asters will wonder that so long after parts of America were already the home of a considerable population, botanists of Europe were still issuing histories of plants in which there did not appear a single American Aster; as in the great work of Jean Bauhin and his collaborators, in 1650. But toward the end of the seventeenth century, or even while Tournefort was writing, a number of American asters had begun to creep into notice, the slight beginnings of a stream which during the century following was to come in like a flood. Some of our best known

* In Clusius' "Rariorum ... per Pannoniam," 1583; also under other names, in 1583, in Caesalpino's "De plantis" and in 1586 in Camerarius' epitome of Matthioli.

American species were among these; as those of Hermann, his *Aster Novi Belgii* and *A. puniceus* in 1687, his *A. dumosus* and *A. undulatus* in 1698; besides that first of American species, *A. cordifolius*, published in 1635 by Cornut as *Asteriscus latifolius autumnalis* (Canadensium plantarum . . . historia, 65).

With 1700, supposed discoveries of asters had also begun in other continents, though the true range of the genus had not yet been effectually extended: Plukenet's "*Aster Indicus*" of 1696 being later separated as *Asteromoea;* and Ammann's Mexican "*Aster aurantius*" of 1664–8 as *Clomenocoma;* while the first African plant to be described as an Aster, the "*Aster fruticosus*" of Commelyn, 1701, was at length referred to DeCandolle's *Diplopappus.*

This Clusian period had been an agglutinative one, with keener perception of resemblances than of differences. But it was already observed that many incongruous plants had been included; the genus had become a great repository of species afterward referred to *Conyza, Inula, Pulicaria,* etc. Jean Bauhin and followers had already in 1650 cut off 27 or more species which had been by some referred to Aster; but they had been severed as by an uncertain stroke, and the authors concluded presently that some ten species described as *Conyza* might equally well have been in *Aster.*

Linnean Aster.—A new era, that of the modern genus Aster, begins with Sebastian Vaillant, in 1720, in his communications to the French Institute.* Vaillant, cutting off the yellow-rayed species included in Aster by Tournefort and by the Bauhins, retained some 47 species, and remarked that "*Aster* is distinguished from *Solidago* by not having yellow rays," so disposing at a word of a troublesome boundary-line which has perplexed not a few botanists before † and since.

Vaillant thus restricted the genus Aster to substantially the limits it has since borne. The genus was now for the first time established on such lines that the botanist working backward from

* "Suite des Corymbiferes, ou de la Seconde Classe des Plantes à Fleurs composées, par M. Vaillant"; in "Histoire de l'Academie Royale des Sciences (Paris) avec les Mémoires ... de Physique" for year 1720, 277–340. Paris 1722.

† So John Ray, Historia plantarum, 1 : 265. 1686, writes, "Difficile admodum est notam aliquam assignare quâ differat ab Astere Virga Aurea dicta."

the present, would recognize it as the genus Aster of his personal acquaintance. But even yet most of the species did not bear binomial names, nor was a definite generic description evolved; both of these achievements were the work of Linnaeus, 1737 and 1753. Succeeding botanists have since cut away a third of Linnaeus' 30 species, but by means of previous authorities he cites, we may trace the history not only of their future but of their past.

American Species.—A great influx of American species formed the next feature of Aster history. Each new edition of Linnaeus' Species plantarum became a new milestone in its progress, and conspicuous additions were made by Clayton and Gronovius, 1762 and earlier, by Lamarck 1783, by Aiton's Hortus Kewensis 1789, by Willdenow 1804, and Nees 1818, with whom the species of Aster reached 130, after which we may consider the present period to begin, characterized by strong tendency to segregation of numerous small bodies of long-known Aster species as separate genera.

To recapitulate, the following great epochal divisions in Aster history may therefore be roughly blocked out before proceeding to further detail:

I. The *Early* or nebulous phase, onward from before Theophrastus, about 320 B.C., or from Hippocrates, perhaps a hundred years earlier.

II. The *Dioscoridean* period, dominated by Dioscorides' one description, for about A.D. 65–1576, to Clusius and Lobel and to the death of Matthioli, the great commentator on Dioscorides; the period of the monotypic *Aster*.

III. The *Clusian* or agglutinative period, 1576–1720, with recognition by Clusius and Lobel, preceded by Gesner and Pena, of new species, chiefly European, but confused with yellow-rayed inuloid and other forms. Here the history of the genus Aster ceases to be the history of a single species, a history running through ages as a single thread; and henceforward its details are best followed under the species affected.

IV. The *Linnaean* period for the genus Aster dominated by the successive editions of Linnaeus' Species plantarum; beginning with Vaillant's limitation of the genus, 1720, by exclusion of yellow-rayed species; its binomial names dating from Linnaeus, 1753;

and its culmination for *Aster* appearing in the work of Willdenow, 1804, in Pursh's Flora, 1814, and in Nees' "Synopsis," 1818.

V. The *Segregation* period, distinguished by the separation from Aster of numerous small sections as independent genera; ushered in by Cassini, 1818, etc., extended by Lessing, 1832, and speedily culminating in Nees' "Genera et Species Asterearum," 1832; followed by DeCandolle's *Aster* in the fifth volume of his Prodromus, 1836, and by Rafinesque in America, also in 1836. Partial reuniting followed in America at the hands of Torrey and Gray in their Flora of North America, 1841, and was maintained by Gray in his Synoptical Flora, 1884. A renewed impulse to segregation has latterly assumed strength, as manifested by E. L. Greene in his Pittonia, 1896, etc., and by Britton and Brown, Illustrated Flora, 1898.

HISTORY OF PRE-CLUSIAN BOTANY IN ITS RELATIONS TO ASTER

I. THE ANCIENT TYPE

The type-species of this wide-spread genus, *Aster Amellus* L., has the historic right to be so considered, not only from its being identified as the Aster of Dioscorides and as the earliest mentioned (excluding *A. Tripolium** L., which many authors would separate from *Aster*) but also because of continuous citation as *the aster* for more than 1500 years following, before other species received descriptions. In later times, Tournefort,† evidently regarding it as type-species, and following the practice of describing the type-species of a genus first, placed it at the head of his numerous enumerations of asters. Linnaeus half a century later gave it a central position, following a practice of surrounding the description of his type-species with allied species grouped before it as well as after, so that we find his type description imbedded among its congeners.

Linnaeus by his citations ‡ indicated the identity of his *Aster Amellus* of 1753 with the "*Aster Atticus, caeruleus, vulgaris*" of his Hortus Cliffort, 1737, and of Tournefort, 1700, and of Caspar Bauhin's Pinax, 1623.

Bauhin (Pinax, 257) identifies this "*Aster atticus coeruleus vulgaris*" with the figured "*Aster atticus, purpureus*" of Fuchs, 1549, and with the *Aster Atticus* of Dioscorides and the *Amellus* of Vergil, as understood by Matthioli.

This historic type *Aster Amellus*, is a handsome, violet-rayed species, with heads resembling somewhat in size and habit the familiar *A. spectabilis* of our Atlantic seaboard. It is widely distributed through southern and central Europe and into Asia, and

* The Greeks did not consider this plant to be an aster; they gave it the name of tripolion, τριπόλιον; it has a long history, running back to Theophrastus; though not to Hesiod which some have claimed, confusing it with the uncertain Greek πόλιον, or "herb poly."

† Institutiones, 1 : 481. 1700–3.

‡ Species plantarum, 1753.

seems, excluding *A. Tripolium* L., to have been the only representative of its race known definitely to Greece and Rome. Sibthorp found it still growing near Athens. Why it was called *Aster* is plainly stated by Dioscorides, who remarks upon its "floral leaflets similar to a star," * and by Pliny, who describes it as bearing "capitula stellae modo radiata."

IDENTIFICATION OF DIOSCORIDES' ASTER WITH ASTER AMELLUS L.—With the revival of learning the earlier world of the 16th century was busy endeavoring to translate the plants of the ancients into terms of the plants then growing by the Rhine or scattered through Italy, or elsewhere through Germany. There were many widely different attempts made to identify *Aster Atticus* of Dioscorides. Some thought the comparison to a star was due to the shape of each leaf, with star-like lobes, and Hermolaus,† therefore, identified the Greek aster with Alchemilla, the lady's mantle, which plant had been called in the middle ages *Stella* and *Stellaria* from the radiate lobes of its roundish leaves.

Others imagined that the divergence of leaves from a stem was the star-like radiation sought, and, therefore, identified the Greek aster with an *Asperula* with narrow whorled leaves, the *Asperula* or *Aspergula odorata* of Dodonaeus and others, resembling the American species of *Galium* in leaf form, and called *Stellaria* by many (Brunfels and Fuchs, 1531) or *Herba stellaris* (Dodonaeus) or *Hepatica stellata* (Tabernaemontanus), all names derived from the many star-like whorls of leaves.

Several other plants were called *Stellaria* also in the middle ages, and were, therefore, seized upon by different persons as the living prototypes of the aster of the Greeks; including *Plantago Coronopus; Calcitrapa*, the star thistle, with star-like thorns about its involucre; *Rubia* and relatives of the madder, with narrow stem-leaves; as well as the *Alchemilla*, figured by Matthioli under the name *Stellaria* and rejected as not the true *Aster Atticus*.

Others were content with a four-leaved star as their prototype. So Bock, followed by Theophilus Gotius, identified *Aster Atticus* of Dioscorides with *Paris quadrifolia*, "herb paris," its single whorl of leaves forming a four-parted star.

* Diosc. book IV., c. 118, φυλλάρια ἀστέρι ὁμοια,—"petals just like a star," as I have heard a florist, a modern Greek from Athens, render it.

† Hermolaus Barbarus, lib. 17; and lib. 4, corollary 734.

Others still, observing that the starlike radiation was placed by Dioscorides around the flower, not the stem, found such a flower-head in *Eryngium*, with involucral bracts like rays.* For this prevailing interpretation, traced to Serapion, the sponsor was Matthaeus Sylvaticus—known as the "author of the Pandects," or Pandectarius, and by that name considered and his identification condemned by Fuchs, 1531.

None of these identifiers paid any heed to Dioscorides' express statements that his *Aster Atticus* produced a flower constructed like the daisy; and that its rays were purple; and that its stem-leaves were oblong. But presently Valerius Cordus and Fuchs and Matthioli observed these neglected but perspicuous characters, and the characters led them direct to the plant accepted by Dodoens and Clusius in 1557, and which the world has since followed them in calling *Aster Atticus*, or since Linnaeus, as *Aster Amellus*. Why that particular species of *Aster* rather than any other should have been the one identified, is to be seen at once when we observe that it is the only *Aster* species and also, I think, the only plant whatever, which at once fulfills the requirements of occurrence near Athens, of daisy-like flower-heads, purple rays, yellow disk, oblong leaves, and conspicuous pubescence. Botanists have accepted the identification ever since; and about 1786, Sibthorp had the satisfaction of finding it still growing near Athens.

The notes which Sibthorp left did not record a vernacular name for this Aster, but there appears to be good evidence that the very name used by Dioscorides still survives for it in the Attic vernacular, in the form astron, *ἄστρον*. A Greek from Athens tells me of hearing it called *ἄστρον* among the people about 1890 or earlier, when seeing it growing "toward Megara." This form *ἄστρον* has also begun to appear as its name in dictionaries of Modern Greek; as in that of Scarlatos, 1874, and that of Kind, 1876. Other dictionaries give for vernacular for aster *ἀσπρολούλουδον*, "daisy."

Lenz,† in 1859, cites it as *βαλτοχράτης* in modern Greek and as the *amellus, astro or astere attico* of modern Italy.

* J. Bauhin, Historia plantarum universalis, 2: 1047.

† Lenz, Botanik in alten Griechen und Römer, Gotha, 469. 1859.

The vernacular of modern Italy is directly stated by Bertoloni,* 1854, to use the name *amello* for it. Matthioli called it *amello* in 1544 and Calceolarius † did so in 1566; but even if we exclude these as probably book-names, there remains its vernacular use in the form *amello* on record in Targioni-Tozzetti's dictionary of Italian vernacular plant-names, Florence, 1809; as well as Bertoloni's assertion in 1854, "Virgilianum nomen hactenus superest."

IDENTIFICATION WITH VERGIL'S AMELLUS

It was Matthioli also who made the received identification of Vergil's *Amellus* with *Aster Atticus*, making it on the ground of the agreement of Vergil's description with that of Dioscorides, particularly in the purple rays and erect and stiff stems, with branches only at the top, censuring on account of each of these features those interpreters of his time, who were seeking to prove that Vergil's *Amellus* was their *Chelidonium minor*, the lesser celandine, *Ficaria ranunculoides* Rth. Others confused both plants with *Primula veris* L. Guilandini, ‡ 1558, Gesner and Crato, at about the same date, had each his theory. Hermolaus Barbarus had suggested the chamomile. Another identification was that of Thalius, with the *Caltha palustris*, confuted by Bodaeus ỳ Stapel in his edition of Theophrastus, 822–3 (Amsterdam, 1644) and again by Wedel, *De Amello*, Jena, 1686. Another identification which Bodaeus and Wedel refute was that made by unnamed correspondents with the Greek *melissophyllon*, the *Melittis melissophyllon* L., on the faith of an ancient gloss in which *Amellus* was rendered *meliphyllon*. But to render *Amellus* by this whitish-flowered labiate plant disagreed with Vergil's entire description of form and color.

Wedel, 1686, devoted his inaugural address at Jena to a far-fetched attempt to prove that Amellus is *Melilotus officinalis* Willd. claiming that Vergil meant by his "purple leaves" or petals, simply "shining foliage."

Lobel in 1570 marks the chief hesitancy § among authors of

* Bertoloni's Flora Italica, 9 : 257.

† Calzolari's "Il viaggio di Monte Baldo ... di Verona,... si piante e herbe che ivi nascono," 8. 1566 (Valgrisi, Venice).

‡ Melchior Guilandinus' "Theon, ... adversus Matthiolum," Padua, 1558.

§ Pena and Lobel, Stirpium adversaria nova, 147.

repute regarding the identity of Vergil's *Amellus;* and his hesitation was not as to whether or not it were an aster, but to which of three species it should be assigned, whether to his *Stella Attica Monspeliensium*, his *Aster Italorum luteum*, or his *Aster minor Narbonensium*; no one of which was really its true equivalent.

All recent writers seem to have agreed with Matthioli and Bodaeus in identifying Vergil's *Amellus* with the *Aster Atticus* of Dioscorides, the *Aster Amellus* of Linnaeus, even a name *L'Aster de Virgile* developing for it in French according to Fée; * who cites Jussieu and A. P. DeCandolle as agreeing in this identification.

* Fée's Flore de Virgile, in Charpentier's Oeuvrès de Virgile, 4: 434. Paris, 1835.

DIGEST OF ANCIENT DESCRIPTION AND BELIEF RELATING TO ASTER

The purpose of this digest is to bring into one comparative view what was written regarding Aster during its earlier or monotypic history, free from attendant matter relative to writers and their works—which will be considered in due succession afterward. The present digest will afford interesting examples of development and of the growth of ideas as passed on from one writer to another, —forming as it does a section cut through time, and exposing to view in its succession of mental attitudes, such alternations as the progressive steps of growth of one period to be followed by atrophy in another.

For the purpose of this digest I use as complete or partial equivalents to Aster, i. e., *Aster Amellus* L., the Dioscoridean synonyms, those of Caspar Bauhin and other sixteenth century writers, and the πολυόφθαλμον of Hippocrates, Pausanias' Asterion, the Argemon of Pliny, bk. 26, c. 59, and bk. 24, c. 19; and some others for which see the tables of plant names.

Citations for *Aster Amellus* L. from authors later than Clusius are added for comparison of stem, color, habitat, etc.

The following abbreviations are used: *D.* = Diosc., *V.* = Verg.

Bavaria.—For a young Bavarian girl who was accustomed to pick the flower, *Aster Amellus* L., on the hills near Passau, until about 1898, and knew it only by the name Himmelschlüssel; cited to exhibit German folk-belief.

Attica.—For a young Greek, who, 1890 and earlier, knew the flower as native near Athens, only as ἄστρον and as included in ἀσπρολούλουθον; cited like the preceding, to compare ancient folk-belief with the present, and to exhibit survival of ancient conceptions.

Original descriptions of the plant occur in whole or in part in Vergil, Dioscorides, Pliny (a few sentences), Valerius Cordus—1539, Fuchs 1542, Matthioli 1544, perhaps Dodoens 1554, perhaps Lyte in 1578, or in the 1595 edition, in Clusius 1583,

Dalechamp 1587, Gerarde 1597, Parkinson 1629, and especi 1640, J. Bauhin 1650, Bobart's completion of Morison, 1699.

Most other writers who merely borrowed or echoed the w of their predecessors, do not appear in this summary, except they modified or distorted the matter they compiled.

The text following constitutes a series of quotations; but quo tation marks are omitted except in a few cases where they may contribute to clearness.

ASTER DESCRIPTION

FLOWER STRUCTURE

Aster is a plant which bears a flower constructed like that of a Chamomile or resembling Anthemis * [that is, it is a Composite with conspicuous rays and a flattish yellow disk].—*D.* *ὥσπερ ἀνθεμίδος.*

Each flower is just like a daisy, *Attica,* with a yellow spot in the middle.—*Bavaria.*

Our Amello bears flowers like our Camamilla and like Bellis, *Matthioli;* after the fashion of Cammomill, *Lyte;* like Marigold, *Parkinson;* radiato Bellidis majoris positu, *J. Bauhin, Ray;* forma fere florum Calendulae, *Morison.*

The Aster-flower is a little head, *κεφάλιον, D.,* capitula, *Pliny, Fuchs,* etc., capitella, *Ortus Sanitatis;* a green scaly head like unto those of knapweed but lesser, *Parkinson.*

It is surrounded by a split border, *περισχιδές, D.*

> per orbem incisuris divisum, *Fuchs,* etc.,
> stellae ... comantibus circumquaque foliolis, *Dalechamp.*

a border of petals, *Attica;* of many narrow leaves, *Bavaria;* many leaves, *V., folia plurima;* little leaves, *φυλλάρια, D.* [*i. e.,* rays], frondicelle, *Matthioli;* small leaves, *Lyte;*

> quae plurima circum funduntur, *V.*

Star-like Form.—The flower bears its little leaves radiating just like a star, *ἔχει δὲ φυλλάρια ἀστέρι ὅμοια, D.;* stellae modo radiata, *Pliny, Fuchs, Ortus Sanitatis.*

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* Dioscorides who defines his Aster as having the flower-structure of Anthemis, had already described his *Ἀνθεμις*, bk. iii., c. 144, as having numerous circular heads, *κεφάλια περιφερῆ*, with a center which forms a gold-colored blossom, *χρυσίζοντα ἀνθη*, but on the outside orbicular in circuit, encircled, *κυκλοτερῶς*, with white or yellow or purple.

The plant bears a star, *Ortus, Gart der Gesundheit, Fuchs.*
Purple leaves in order and fashion like a starre.—*Lyte.*

TIME OF FLOWERING

It is a flower of the later season, and is seen when the meadows in the valley have been shorn, *tonsis.—V.*

We had to pick them when no one was looking, because we ought not to have broken into the grass where they grew; they were to mow it for the cows; 'twas in very hot weather, along in summer, perhaps in August.—*Bavaria.*

Amello blooms at the last of summer or beginning of autumn; as Vergil indicates in saying "Tonsis in vallibus."—*Matthioli.* (Italian edn. of 1568.)

Floret aetatis fine, aut principio autumni, ut Augusto mense et Septembri; durantque in magnam autumni partam ejus flores.—*Dalechamp.*

It doth most commonly floure in August.—*Lyte.*

In the end of summer, when the fields are mowed.—*Parkinson.*

Florens Augusto, semine matura Octobri.—*J. Bauhin.*

It flowers in August or September and in mild seasons will often continue till the middle of November.—*P. Miller,* 1797.

Fl. Aug. to Oct.—*Fl. Deutschland.*

COLOR OF FLOWERS

The flower of Aster Atticus is purple or yellow [*i. e.*, we may call it either, according as we are most impressed by the color of the rays or of the just opened disk]. πορφυροῦν ἢ μήλινον, *D,* (codices); but the purpled part is the most esteemed, τὸ πορφυρίζον τοῦ ἄνθους.—*D.*

The flower is golden in itself, *aureus ipse,* but the rays have the purple of the dark violet, *violae purpura nigrae, V.*

The flower has a yellow spot in its center, and the leaves around it are blue, deep blue, like the heaven, and that's why its name is Himmelschlüssel.—*Bavaria.*

They are blue or purple with yellow in the middle; like the cornflower, κύανος ἄνθος, blue color, but not so dark—*Attica.*

Its flower is purple, purpureus flos, *Columella,* (who probably never saw the native plant and misunderstood his Vergil, applying "aureus" to the general effect of the plant, instead of the rays).

Probably Aster Amellus was in the mind of the author of the Hortulus ascribed to Vergil and printed 1492—but not since?—when writing

> Flores nitescunt discolor gramine,
> Pinguntque terras gemineis honoribus,
> Its flowers shine there with two-colored sprays,
> And paint the turf with twin graces—
> *Vergilii hortulus.* *

As the "Hymmelschlüssel" of many of the mountain people, and one of the chief blue flowers of his own Lombardy, Aster Amellus was probably at least a part of that "coelestis coloris" of which *Jacobus de Manliis* wrote, about 1450, interpreting Serapion as saying of Eryngium, by him blended with Aster Atticus, "Serapion ait Ascaracon, id est, centum capita est coelestis coloris."

"The leaves of the Hymmelschlüssel are not colored white [as some say, applying the name to the daisy]."—*Hieronymus of Brunswick*, writing 1490–1531.

The purple and yellow of this herb are to be applied to different parts of the flower; for the leaves are of a purple color, but there is a yellow central head in among these leaves in the manner of a Chamomile.—*Marcellus Vergilius*, 1518 (fide Dalechamp, 1: 860).

Our aster is purple and yellow.—*V. Cordus, Fuchs.*

For the middle part of the Aster blossom which I found near Jena has a yellow color, around which little purple leaflets are disposed as we see in the flower of the Chamomile; by which arrangement it is both purple and yellow at the same time.—*Valerius Cordus*, 1539.

Our Amello has the middle yellow and that which is around it clear purple—mezo gialli, ed all'intorno porporei chiari.—*Matthioli*, 1558.

Duplicem floris colorem etiam Dioscorides innuit . . . Medio lutei, comantibus circumquaque foliolis diluta purpura nitentibus. —*Delechamp*, 1587.

Yellow in the middle and set round about with small purple leaves.—*Lyte*, 1595.

Faire blew flowers inclining to purple.—*Gerarde*, 1597.

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* As printed by Koberger, Nuremberg, 1492.

The outer border of leaves being of a bluish purple color and the middle thrum of a brownish yellow.—*Parkinson*, 1640.

Violaceo aut albo, disco medio fulvo.—*J. Bauhin, J. Ray.*

Disco in medio ex luteo fulvi coloris, cum petalis plurimis [12, 12, 10, 10, and 10 figured on 5 principal heads] purpuro-violaceis ambientibus.—*Morison*, 1699.

Violacea et lutea.—*Nees*, 1832.

Rays "ein sehr schönes blau-violettes," and "sometimes with red rays."—*Fl. Deutschland*, Hallier's revision.

STEM AND BRANCHES

Each little stem, *ῥαβδιον D*, cauliculus *Pliny*, bears its blossoms at the summit, *ἐπ' ἀκρου ἐχον ἀνθες*, *D*, in cacumine capitula, *Pliny*, in acumine, *Ortus*.

Amellus is an herb which forms a single tangled sod of roots and raises up a great forest of stalks, *V.*

herba...uno ingentem tollit de cespite sylvam.

Each little stem was slender and just had its flower at the top. —*Bavaria.*

Down at the ground many leaves, and then come up the sprays, two or three together sometimes, without any [large] leaf, and then at the top of the spray comes the flower, which has a large calyx.—*Attica.*

Our Amello is an herb which makes its stalks straight up from the root, "fa i gambi dalla radice diritti;"—the stem is dark and purplish, and it gives birth to branches almost at the summit. —*Matthioli.*

Herba ista caules ab radice mittit rectos, solidos, ac lignosos, colore fusco lutescente; e quibus circa cacumen ramuli oriuntur, in quorum summitate flores spectantur.—*Dalechamp.*

Sterrewurt hath a browne, hairie and wooddish stalke. At the top of the branches groweth three or foure shining floures.—*Lyte.*

Among which [leaves] riseth up an hairie stalke of a foote high, having at the top faire blew flowers.—*Gerarde.*

It hath many woody, round and brittle stalkes rising from the roote about two foote high whereon are set without order to the toppes many leaves, and is divided into sundry branches bearing single flowers like marigold.—*Parkinson.*

Caules habet cubitales et sesquicubitales, tenues, teretes, duros, hirsutos, subrubentes. . . Caules circa fastigium in surculus dividuntur.—*J. Bauhin*, and *Ray*.

Cauliculos promit erectos, rotundos, aliquantulum duros, fragiles, asperos, nonnihil pilosos cubitum altos. Flores in summitate virgularum emicant.—*Morison*.

It grows seldom more than two Foot high ; its Flowers are large, produced in great Tufts.—*Philip Miller*, 1733.

The stems grow in large clusters from the root, and each of them branch at the top into 8 to 10 peduncles, each terminated by a single large flower.—*Miller Dict.*, 1797.

Stem usually ½ meter, sometimes only ⅓ m., or even 1 ¼m. high.—*Fl. Deutschland*.

A Woody Stem —The stem is somewhat woody, * ξυλώδες, *D.*; frutex, *Columella*; lignosus, *Fuchs*, *Matthioli*, *Dalechamp*; wooddish, *Lyte*; wooddy, *Parkinson*; durus, *J. Bauhin and Ray*; aliquantulum durus, *Morison*.

ROOT

Vergil's reference to growth, "ab uno cespite," implies such a mass of long and entangled fibrous roots, binding a sod together, as were first in set terms described by *Fuchs*, 140, "radix fibris multis capillata."

Its root is divided into many parts of a not unpleasant odor, an odor like that of a Garofano, a clove-gilliflower.—*Matthioli*.

The root is bearded with hairie strings.—*Lyte*.

The root is threddie like the common Daisie.—*Gerarde*.

The roote is composed of sundry white strings which perish not, but abide many years with greene leaves on their heads, and spring afresh every yeare.—*Parkinson*.

* Some might suppose that what botanists now call a woody stem is meant and that Aster would not agree well. But woody was here meant in distinction from *soft*. Dioscorides' idea of a shrub, θάμνος, consisted of two essentials, a hard stem, and bushy branching; he calls Marrubium, Stachys, Conyza, each θάμνος, a bush, and Ambrosia he calls θαμνίσκος, fruticulus ; Paronychia he calls θαμνίσκιον ; chrysanthemum, θαμνοειδῆς. Theophrastus classed plants as δένδρα, θάμνοι, βοτάνοι, trees, shrubs and herbs. Nicolaus Damascenus added a fourth class, λάχανα, vegetables. In 1598, Saracenus, translating Dioscorides, was dividing also into four classes, but his were arbores, frutices, virgulta et herbae. His usage was not uniform, but very commonly his "virgulta" were woody hard-stemmed plants for which Dioscorides used the word ῥαβδίον as with aster, and for which he was equally likely to use θάμνος.

Radix tenuis, transversa jacet, a qua multa demittuntur fibrae, sapore amaro, nonnihil aromatico et calfaciente, quidam aiunt nonnihil caryophylli resipiente.—*J. Bauhin* and *J. Ray.*

Radix fibrosa est et vivax.—*Morison.*

Radicem multifidam, odore non ingrato, et nonnihil caryophylli resipientem.—*Dalechamp.*

LEAVES

Its stem leaves are oblong, *ὁπομήκη*, and hairy, *δασέα*, *D*, oblongus.—*Pliny.*

They are two or three in number [meaning in a rosette or occasional cauline swelling?].—*Pliny, Ortus Sanitatis.*

Many leaves down at the bottom, say three or four or more; and those leaves long, but not so long as a finger.—*Attica.*

Our native aster has its stem clothed, *vestitus*, with oblong and crowded leaves.—*Fuchs.*

The leaves are longish, "lunghette," like an olive leaf, but much smaller, hairy, inclining to be dark; those on the branches are much smaller.—*Matthioli.*

Folia profert oblonga, acuminata, oleae figura, minora tamen, hirsuta, aspera, nigricantia, subamaro sapore, in caule minora sunt. *Dalechamp.*

The leaves be long, thicke, hairie, of a brown or swart greene colour.—*Lyte.*

A kinde of Aster, that hath many small hairie leaves like the common greate Daisie.—*Gerarde.*

Foliis amictos oblongis acuminatis, aspero et pilosis, interdum renis paucis incisis.—*J. Bauhin.*

Folia oblongiora, praesertim juxta cauliculos enata, dura quoque et asperiuscula, latiuscula et obtusa.—*Morison.*

ACHENES

The little seed of the rush *σχοίνος μελαγχρανισμός*, bears a reemblance to that of Asteriscus, only that this of the rush is more slender.—*Theophrastus.*

The seeds are small, rather long, not much unlike that of hicory, or "Intyba."—*Dalechamp, J. Bauhin, J. Ray.*

The seeds are small, blacke, and flat, somewhat like unto Latice [Lactuca, Lettuce] seed, *Parkinson.*

Pappus.—Fuchs is perhaps the first to mention the pappus, saying of the flower of his native Aster, "qui subinde in pappo abit," a phrase which had been the usual Latin version for Dioscorides' remark of Conyza, bk. 3, c. 136, ἐκπαππωούμενον.

After flowering it becomes woolly, "lanuginosi," making its seed just like that of an Endive—"endiva," *Matthioli.*

Flowers "which at length turn into downe or cotton, and the plume is carried away with the wind."—*Lyte.*

"Which turne [in the time of seeding] into a woollie downe that fleeth away with the wind."—*Gerarde.*

In pappos evanescunt.—*Morison.*

These flowers abide long in their beauty and in the end wither and turne into a soft downe, . . . [and] seed, which with the downe is carried away with the wind.—*Parkinson.*

TASTE

Dioscorides says nothing of any bitter quality in his Aster Atticus but does so describe its relative Conyza, bk. 3, c. 136, as ὑπόπικρον, subamarus. Vergil was first to ascribe bitterness to Aster itself. *Asper in ore sapor.*—*V.*

The leaves of our wild Amello are bitterish.—*Matthioli.*

The whole plant hath a drying, binding and bitter taste, *Gerarde*; harsh and binding, *Parkinson.*

Sapore subamaro, *Dalechamp;* sapor est asper, *Bodaeus.*

Sapore subaromatico et subamaro ac siccante [of the leaves].—*J. Bauhin, Ray.*

The leaves and stalks being rough and bitter, the cattle seldom browse upon them, so that they remain in the pastures, after the grass is eaten bare, and making a fine appearance when they are full of flowers.—*P. Miller,* 1797.

ASTER HABITATS

LOCALITIES

Type locality.—The Aster of Attica, Ἀστὴρ Ἀττικός, *D.*

The ancient Greeks add that the Aster Atticus is known *ab Atheniensi agro,* because there on account of the thinness of soil, perhaps it grew better or more frequently.—*Dalechamp,* 1587.

He calleth it Aster Atticus of the place no doubt where it grew

most plentifully or was of greater force, which was the country of Athens.—*Parkinson*, 1640. [So, essentially,] *Bodaeus*, 1646.

About Athens *hodie.*—*Sibthorp*, 1797. I saw them growing together wild, from the roadside, out toward Megara.—*Attica*, 1890.

On the banks of the river Asterion, near this Heraeum [between Mycenae and Argos, amid wild rocky hills] grows an herb which they also name Asterion. *Ἀστερίωνα καὶ τὴν πόαν ταύτην.*—*Pausanias.*

Italian Localities.—Near the curving stream of Mella [the river Mela, flowing south from the Alps, near Mantua], *V.* Planta est hodie non paucis [in Italy] cognita, *Matthioli*, 1544? At Monte Baldi, near Verona, *Calzolaris*, 1566.

I have gathered the Aster Amellus in dry hills near Bussolinum, and Segusium, and in Vinodium at a place called Nirajessa. In hills about Turin within dry woods. In higher woods of Montferrat not infrequent, beyond the town Mazius, cl. Bellardi Berennio. *Allioni*, Fl. Piedmont, 1785.

Habui ex districtu Como; Sarnica, Baldi, Tyrol, Bolzan mountains; from hills at Solferino, from the Apennines at Semano and Fivizza and many other places. Bertoloni, Fl. Italica, 1854.

German Localities, etc.—Near Jena; ego autem scio me verum Aster Atticum in montibus circa Jenam invenisse, et nascitur in petrosis montibus.—*Valerius Cordus*, 1539.

Herbam cujus picturam exhibemus [is one now known in Germany].—*Fuchs*, 1542.

About the river of Rheine.—*Lyte*, 1595.

Also in Austria, Carniola, Germany, and Switzerland where I found it very common about Bienne.—*Martyn*, 1797.

In Germaniae saxosis nemorosis satis vulgaris.—*Willdenow*, 1804.

In southern and middle Germany, Thuringia, Silesia, near Frankfort-an-der-Oder, on calcareous hills near Berlin, in Schrei, Salzburg, high Bavaria, Pfalz, Tirol, Schwabia; but not in the Schwarzwald.—*Fl. Deutschland.*

About Vienna grows the tall rough form separated by Reichenbach as *Aster amelloides.*

I used to pick them as a girl near Passau.—*Bavaria*, 1898.

General Range, etc.—In many medowes both in Italy and

France.—*Parkinson*, 1640. In Italia, Sicilia et Gallia Narbonen passim obvius.—*Ray*, 1686.

Italiae, Bohemiae, Siciliae, Galloprovinciae, passim obvius. *Morison*, 1699.

It grows naturally in the valleys of Italy, Sicily and Na bonne.—*Philip Miller.*

In Europae australis.—*Linnaeus.*

" Ubique per Germaniam et Asiam borealem et mediam ;" an with it, especially in Volhynia Podolia and Bessarabia, varieti with serratures and acute or narrower bracts.—*Nees*, 1832.

In Europae mediae et australis Asiaque occid.—*DeCandoll*

Helv. Austr. Germ.—Belg. (Luxemburg), Gall.—Ital. bot —Dalm. Croat. Hung. Transs.—Attica—Rossia med., mer. *N man*, 1854.

SITUATIONS

Characteristic Habitats.—It grows in the midst of rocks and rough places, *μέσον πετρῶν καὶ τόπων τραχέων*, *D.* (interpolation, Sprengel).

It is found in the meadows; it is found in shorn valleys,—*in pratis,—tonsis in vallibus.—V.*

It grows here and there among bushes and thickets,—*passim in vepribus.—Pliny.*

Growing in the unploughed turf, *crudo cespite*, in well-watered ground, *irriguo solo*, in virgin soil, *virgineo solo*,—*Columella* [inferences from Vergil only?].

Nascitur inter petras et loca aspera.—*Apuleius Platonicus*, c 400 A. D.

Nascitur in petrosis montibus.—*Valerius Cordus*, 1539.

Nascitur in collibus, montibus altis, et sylvis.—*Fuchs*, 1542.

Nascitur in asperis, incultis, et convallibus.—*Matthioli*, 1560 so *J. Bauhin*, *J. Ray.*

Our Amello grows in the folds of the hills—"faldi,"—*Matthioli*, Ital. ed'n, 1568.

Nascitur in collibus, et nonnunquam in pratis et sylvis.—*Dale champ*, 1587.

Sterrewurt groweth upon small hillocks, barrowes or knaps, i mountaines and high places, and sometimes in woods, and in cer taine medowes lying about the river of Rheine.—*Lyte*, 1595.

In many medowes both in Italy and France.—*Parkinson*, 1640.

Nascitur in asperis incultis collibus et convallibus et pratis.—*rison*, 1699.

In asperis collibus.—*Linnaeus.*

They grew many together, in a dry place, up a hill, near Pas-, on a grassy slope, in the edge of a meadow; and it was on border of woods.—*Bavaria*, 1898.

EARLY REGARD FOR ASTER

ASTERS GATHERED BY FLOWER-LOVERS

You, whoever you are, gatherer of asters, *Πᾶς δέ τις . . . ἔρα ἀρέψας.—Nicander.*

Plucking often these beautiful enchantments—*πολλάκι θέλκτα λὰ . . . ἀμέργων.—Nicander.*

Shepherds gather them, pastores legunt.*—*V.*

We would pick them to wear, and to bring and put in the ouse. Just the year I left Germany I overheard the children lking of going up the hill to the meadow to pick them.—*Bavaria.*

Cultivated for its Beauty.—Aster Atticus est amoenus.—*J. aulin, J. Ray.*

Its rays are "sehr schön."—*Fl. Deutschland.*

It was cultivated in 1596 by Gerarde; in 1804–1836, etc., it as in cultivation in many European gardens by name of *Aster legans.*

"Aster Atticus . . . is one of the most beautiful kinds . . . and is eadily kept in compass [some other species had made him trouble y spreading among other plants]. . . and is a great ornament to the Gardens.—*Philip Miller*, 1733.

"It makes a fine appearance when full of plants, and might well engage a poet's attention."—*Miller's Dict.*, 1797.

Their flowers Glow.—Shining asters, *φωτίζοντα.—Nicander.*

Amellus, . . . sublucet.—*V.*

Flores nitescunt discolore.—*V. hortulus.*

Stellae . . . foliolis diluta purpura nitentibus.—*Molinaeus'* completion of Dalechamp, 1587.

Its flowers are shining.—*Lyte*, 1595.

* Anthemis its near relative is mentioned in set terms as forming wreaths; "in ornamenta reponitur" as Ruel summarizes it.

ASTERS BROUGHT TO SHRINES AND TEMPLES

Gather the asters; place them on the roadside shrines of the gods,
Yea even on the images wreathe them and that when first you behold them,
δρέψας, εἰνοδίοισι θεῶν παρακάββαλε σηκοῖς
ἠ αὐτοίς βρετάεσσιν, ἁτε πρώτισταν ἰδωνται, ***Nicander.***

Often the altars of the gods are festooned with its woven garlands,

Saepe deum nexis ornatae torquibus arae.—*V.*

[At the Argive Heraeum] they offer the plant to Hera and twine its leaves into wreaths for her.

τῇ Ἥρᾳ καὶ αὐτὴν φέρουσι, καὶ ἀπὸ τῶν φύλλων αὐτῆς στεφάνους πλέκουσιν.
Pausanias.

[By some it became identified with] the plant Argemon, which Minerva discovered.—*Pliny.*

Asters laid on the tomb, or on the memorial stones of departed heroes.

Gather the aster and helenium, . . . ,
Pluck again and again these enchantments beautiful, and pluck the chrysanthemums,
And lilies, and lay them as garlands on the tombs of the weary at rest,
σκήλωσιν ἐπιφθίνοντα καμόντων.—Nicander.

ASTER IN PASTORAL LIFE

Shepherds know them.—Husbandmen know it, it is easily found by the searcher—agricolae facilis quaerentibus herba.—*V.*

Shepherds gather it—pastores legunt.—*V.*

It grows in wild places and is found by the shepherds of the flocks *—*εὑρίσκεται δὲ παρὰ βοσκοῖς προβάτων, D.* (interpolation?)

The shepherds understand it best.—*Apuleius Platonicus.*

It is best known to shepherds, *pastoribus maxime videtur.*—*Ortus Sanitatis*, etc.

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* Growing among the shepherds, where, as one of their modern Greek folksongs sings,

"Night is black on the mountains;
Snow fills in the ravines;
Where ways are wild and gloomy,
Through rocks abrupt and gorges,
Where here upon the mountains
Sequestered virtue dwells."

The ancient pastoral life immortalized to us by Theocritus and Vergil still survives among the Greek shepherds of to-day; a modern Greek poem pictures the Vlach * who "went and sat beneath the fir; who folded his flock by the bramble," "where by the weird-haunted rocks he played upon his pipe." † In Aetolia Rodd heard shepherd boys singing while "playing on their six-topped pipes cut from a hollow cane in the old traditional way."

The survival of the ancient shepherd life in and near Attica is thus described by Rennell Rodd: "Whatever their race, their manner of life is the same. Their days are spent entirely in the open air, and in wet weather or dry they sleep with their flocks, covered with their rough frieze cloaks on the mountainside; in the summer they explore the higher altitudes, and make their halting places in the lambing season under some dark vallonea's shade . . . Illness is unknown among them and they generally live to a very great age. . . . One may see the shepherds moving camp often on a November morning marching around the outskirts of Athens, when they move down from the high pastures of Cithaeron to winter in the lower slopes around the foot of Pentelikon. . . . It is in this folk of the mountains and the open air, living their changeless life apart, with their tanned and faunlike faces, and the laughing look in their clear brown eyes under the matted curly hair, that the link to the older world is the closest. Their habits, their methods, their very dress, have hardly changed; and living face to face as they do with the miracle of nature, the weirdness of mighty forces unaccounted for, and the evidences of strange phenomena which they cannot explain, still keep alive in them the mystery of the ancient Pantheism. (Rodd, 80; and again, p. 203),—The shepherds of Parnassus who live all their lives in the open air on the mountainside, keenly sensitive to those impressions which affect all simple people who live face to face with nature at her wildest and ruggedest, still speak of supernatural appearances, as of the apparition of a monstrous he-goat among their flocks."

That the story of the aster shining in the night should arise among them is quite in keeping, even though it may have grown

* *Vlach.* The modern Greek knows the shepherds as Vlachs because many of them are of Wallachian origin.—*Rodd*, Customs and Folklore of Modern Greece, 80.

† Rodd, Customs and Folklore of Modern Greece, 279.

up in actual fact as a mere romancer's sophistication of the flower's name.

Shining in the Night.—The stars of this plant shine in the night; so that those who do not understand, when they see this, suppose it to be an apparition (*φάνταομα*), but it is discovered and is understood by the shepherds of the flocks.—*D.* (Interpolation, *fide* Marcellus Vergilius, followed by Sprengel: and see *supra*, p. 37).

This herb Asterion shines in the night just like a star in the sky, and anyone who sees it unaware of this fact may say that he sees a phantasm, and being full of fear he is laughed at, most of all by the shepherds. "Haec herba nocte tanquam stella in coelo lucet, et qui videt ignorans dicat phantasma se videre, et metu plenus irridetur, maxime a pastoribus." *Apulcius Platonicus*, quoted, with a parsimony of miracle, omitting "et metu plenus irridetur," by the Ortus Sanitatis and credited by mistake to Pliny; and in the Gart der Gesundheit quoted with the variation that "it shines so bright that men weened it is a spectre (Gespenst) or a devil" (edn. 1485).

Hujus stellae noctibus collucent; quare qui naturam stirpis ignorant, inane simulacrum se videre putant. *Ruel*, De Natura, 1536; *Matthioli*, 1554, 1560, etc.

Dorstenius, 1540, quotes this, p. 157, calling the spectre "phantasma," adding that "Vergilius Marcellus confutes and rejects this, as something superstitious, because in the most ancient Greek and Latin authors it is not found," *i. e.*, not found in Galen nor in Pliny.

The spectre reappears as "una phantasma" in Matthioli's Italian edition of 1568; and in the form "the flowers shine in the night till they frighten men, who think they see the devil," in Adam Lonitzer's Kreuterbuch, 1557.

Fables ascribing this power of shining in the night to other plants were not unknown to the ancient world. Pliny, bk. 21, c. 36, cites the Greek herbalist Democritus as narrating the night-shining properties of a plant of Gedrosia (in ancient Persia), which he names Nyctegreton, the night-watcher, a plant ceremonially employed by the Magi and the Parthian kings; and others, he says, called it Nyctalops, "from the light which it emits at a considerable distance by night."

ASTER PROPERTIES

References to the Aster Atticus as a plant long in repute mong herbalists occur in Dioscorides, Pliny, Galen, and their ommentators, especially in Ruellius, 1536, Euricius Cordus 1534, Matthioli, John and Adam Lonitzer.

Its old Greek name Bubonion testified to its ancient reputation or healing inguinal sores, a reputation still current among Arabic writers, as Avicenna and Rhases. Fuchs and some other early writers of the sixteenth century say it was not then kept by the apothecaries, but it continued to appear as a potent remedy as late as the edition of Parkinson in 1640, the second edition of Salmon's New London Dispensatory in 1682, and Quincy's Dispensatory in 1721; * also in the various editions of Lonitzer's Kreuterbuch in Germany, 1553, and onward, modified editions derived from which were appearing in Germany as late as 1783. Some related species (Inula, once classed as Aster) are still so employed "for inflammatory buboes,"—Foster's Encyclopaedic Medical Dictionary, N. Y., 1890.

No other Aster species has had any extended medical history, though a number of American species have begun to appear in local or occasional medical use, *fide* Foster, 1890; their properties however appear to be perhaps mild and certainly little tested.

In citing the various uses claimed for his Aster Atticus, I shall begin with the order of properties taken up by Dioscorides, etc., and then consider the manner of its use.

ASTER AS STOMACHIC

Aster as a Remedy for a Burning Stomach.—Aster Atticus is a remedy for a burning stomach, applied as a plaster. *Ὠφελεῖ δὲ στόμαχον ἐκπυρούμενον, καταπλασσόμενον, D.*†

* And this formed in Germany the basis of the Lexicon physico-medicum of 1787.

† Deemed perhaps an interpolation by Sprengel. Dioscorides repeating the above under his "purple violet" may have been intending to speak of Aster still. Its relative, the chamomile, *Anthemis nobilis* L., is still used also, as in Dioscorides' time, as a stomachic. Another relative (presumably) the Conyzites of the Geoponica, bk. viii., c. 10, was mixed with a Greek wine to give it stomachic efficacy, as there described "hoc vinum ictericis et stomachicis commodum."

"The modern Greek household remedies used for stomach trouble are *δενδρολίβανον*, rosemary] pretty near like balsam, *ζεκορφνία* the elder tree (which we less often call

Dioscoridi aster ardenti stomacho . . . illitus confert.—*Ruel*, 1536.

Leaves of purple violet [meaning aster?] are a remedy, stomacho ardenti per se et cum polenta imponuntur.—*Ruel.*

Aestuanti stomacho prodesse Asterem.—*Dodoens.*

It is very good against the overmuch heat and burning of the stomake; being laid to outwardly upon the same.—*Lyte*, 1595.

It helpeth an hot stomache.—*Parkinson*, 1640.

ASTER USED FOR THE EYES

Inflammations of the eyes, styes, etc., are cured by Aster; *Ὠφελεῖ δὲ . . . ὀφθαλμῶν φλεγμονάς*, *D.* (interpolation, Sprengel).

The inflammation in the eye called argemo * was cured by the plant argemon, *Ruel;* see *infra*, under Pliny and under *argemon*.

Aster cures "epiphoras oculorum"; purple violet cures "oculorum inflammationes."—*Ruel.*

For a sty † on the eye, use Uva lupina, or Aster.—*Bock.*

Aster helpeth and swageth the rednesse and inflammation of the eies.—*Lyte;* so *Parkinson.*

Aster Atticus was formerly employed in diseases of the eye. —*Foster*, 1890.

ASTER USES "AD INGUEN" AND FOR ULCERS

For Inguinal Tumors.—Aster is a remedy for buboes, *Ὠφελεῖ καὶ βουβῶνας*, *D.* (interpolation, Sprengel).

Aster is of efficacy for tumors or inflammations in the groin. *Ἁρμώζει δὲ . . . πρὸς βουβώνων φλεγμονάς*, *D.* (genuine *fide* Sprengel).

Leaves of purple-violet [confused with Aster] for vulvae procidentias, *D. Euporista.*

Aster . . . inguinum presantaneum remedium est, *Pliny.*

Inguinaria, or Argemon [is among remedies for tumors], *Pliny.*

Σαμβούκος) *χαμόμηλον* (very valuable medicine it is, a flower, ground-apple or low growing it would mean, and has a very nice smell [chamomile]), *ψιμυθία*, *κομήθειά*, (*Gnaphalium Stoechas* L.) *ἀσφάλακτρος*, (a tree with very tiny leaves and long flowers that are yellow [Cytisus lanigerus DC.?]) and *τριαίλιον*." *Attica*, 1901.

* A small white-centered ulcer on the eye, first mentioned by Sophilus?, for which Pliny and others prescribed the plant argemon, *i. e.*, Aster Atticus.

† Cratevas recommended for this his plant *ἄσαρον*.—Wellmann, Krateuas, 6.

Bubonium ... creditum est bubones sanare, *Galen* (tr.).

Herba chelidonia (probably confused with Aster then as later) is a remedy for ulcers and troubles in the groin, *Samonicus.*

Aster Atticus ... bubones sanare credatur, (tr.) *Galen, Oribasius, Aetios,* Paulus Aegineta,† Avicenna, Rhases, Serapion.* So Fuchs, Matthioli and most writers of the 16th century; with Kreuterbuchs of Verzascha, etc., much later.

"Uva lupina seu Aster" is prescribed for tumors in the groin by Bock, 1536.

Aster ... inguinibus illitus confert, (and again) inguinum inflammationi prodest, *Ruel,* 1536.

Purpureae violae [confused with Aster] ... imponuntur ... vulvave contra suppurationes, *Ruel.*

Stellaria [Alchemilla, confused with Aster] heals internal ulcers of the viscera; "et ... in vulvam indita, alba ... profluvies mirifice sistit," Matthioli, 1560.

Haec herba inguina sanet, *John Lonitzer,* 1543; *Adam Lonitzer,* 1557 and editions of his Kreuterbuch following: some modified editions continued to 1783.

Inguinibus alligata tantum medicinam in eo malo homini faciat, *Dalechamp,* 1587.

Laid to the botches or impostumes about the share or privie members, prevaileth much against the same, *Lyte,* 1595.

The leaves of Aster or Inguinalis stamped and supplied unto botches, imposthumes and venereous bubones (which for the most part happen *in Inguine,* that is, the shank or share) doth mightily maturate and suppurate them, whereof this ... name, *Gerarde,* 1597.

Likewise [good] for botches that happen in the groine.—*Parkinson,* 1629.

The purple leaves of the flower boyled in water was held to bee good for the paines and sores in the groine. It taketh away inflammations in those places. . . . The dryed flowers [should be] bound to the place that is grieved. Hung or tied to the place, it healeth the sores in the groine.—*Parkinson,* 1640.

* Aetios' own favorite remedies were applications which he called *asters* of very various composition; see infra under Aster names.

† But Paulus Aegineta (representing Greek medicine of c. 620 A. D., or some 80 years later than Aetios) for his βουβωνοκοίλη, used especially his cyparissus, symphytum, bitter almonds, and a collyrion of highly complex composition, into which Aster did not enter.

[Heals] botches, imposthumes and venereous buboes.—*Salmon*, 1682.

See also *Quincey's* Dispensatory, Lon. 1721; and see infra, under *Bubonion*, etc.

The herb and root of Aster Atticus were formerly employed in inflammatory buboes.—*Foster*, Encyclopaedic Medical Dictionary, 1890. *Winkler*, Real Lexicon, etc.

——It was the purple or blue part of the flower that was esteemed as possessing the curative power in healing buboes. Did this aid in developing that superstitious preference for blue of which Dr. Millengen in 1837 wrote "To this day, flannel dyed nine times blue is supposed to be more efficacious in glandular swellings!" (Curiosities of Medical Experience, 2: 140. Lon. 1837.)

Related plants credited with similar powers, include "*Inula viscosa*," κόνυζα μεγάλη of Dioscorides, which was formerly applied extensively to tumors. Some species of Inula are still applied to buboes, carbuncles, and sore eyes, and are used as stomachic.—*Foster*, 1890.

"*Conyza squarrosa*, once the *herba conyza vulgaris* of the shops," like its relative Aster Atticus, was recommended as an application to tumors by the Greeks [*D.*, Euporista, 167, edn. Kuhn] and was thought to drive away fleas [hence called fleabane].—*Foster*, 1890. The same reputation carried over, caused the development of the name Pulicaria, made a species of Inula by Linnaeus, later the type of the genus *Pulicaria*.

Dioscorides' [genuine?] Euporista recommends *Buphthalmum* flowers for steatoma, a sebaceous tumor, bk. 1, c. 157; *Conyza* and *Leucanthemum*, bk. 2, c. 69, for uterine inflammation; *Anthemis* for inflammations in the pudenda; *Leontopodium*, bk. 1, c. 166, for similar ulcers and for wounds, as also *Conyza folia*, bk. 1, c. 167, for which the last, the fleabane, held a reputation of long standing (first mentioned by Hecataeus Abderita, who followed Alexander into Syria 332 B.C.; also by Theophrastus, Theocritus and Nicolaus Damascenus).

For Wounds and Inflammatory Sores.—Closely akin to the preceding efficacy and attributed to Aster or related plants.

"Sores or ulcers resulting from dislocations are to be cured by

application of the plant polyophthalmon [same as Aster Atticus? and partial cause, by application of doctrine of signatures, from its name, for the reputation of Aster as a remedy for the eyes] or by such other dressings as are used for wounds; but nothing of a very cold nature is to be applied."—*Hippocrates.*

"Herba quae et *βούφθαλμος* dicitur, vim habens siccandi et eandem quam tussilago; qua ad ulcera cum luxationibus conjuncta utitur, *Hippocrates*, 830," *Foës*, c. 1582, of polyophthalmon.

Porrum, the leek, is one of the six remedies for tumors and sores mentioned by *Hippocrates* as used by him in a certain case (see infra, under Hippocrates); and pounded onions are still common as a dressing for wounds in Greece to-day, *Rodd*, 165.

Achillaea, (Achillios of Cratevas, in the unpublished Vienna codex as cited by Meyer, l. 255) "when bruised, the whole plant pounded up with old axle-grease, cures old and desperate ulcers." —*Cratevas.*

Achillaea is a remedy used for wounds, and, its decoction, in labor, and, ab utero, subdita in pesso.—*D.*, bk. 4, c. 36.

Plantago [sometimes called Aster; from confusion of their uses?] heals ulcers, carbuncles, also the bite of a dog, epilepsy in children; as an amulet, hung by a chain from the neck, its root dispels tumors—[like Aster Atticus].—*D.*, bk. 2, c. 143.

Conyza leaves are used, laid on, for wounds.—*D.*, bk. 3, c. 136.

Argemon [*i. e.*, Aster] cures ulcerating tumors.—*Pliny.*

Stellaria (Alchemilla) believed by many to be Aster Atticus, heals wounds and is sought by German surgeons and celebrated with wondrous praises, (mirisque laudibus), since they mix it with happy success in vulnerary potions.—*Matthioli.*

For Hemorrhoids.—Aster cures *procidua sedi* or hemorrhoids.

Ὠφελεῖ. . . τὰς προπτώσεις ἕδρας.—D.

So does the purple violet [confused with Aster].—*D.*

So does Inguinaria or argemon [*i. e.*, Aster].—*Pliny.*

Aster. . . sedi prociduae illitus confert.—*Ruel.*

Asterem. . . sedi procidenti prodesse.—*Matthioli.*

It. . . helpeth and swageth the inflammation of the fundament or siege.—*Lyte.*

It helpeth and prevaileth against the inflammation of the fun-

dament and the falling foorth of the gut called *Saccus ventris, Gerarde.* So *Parkinson.*

In Labor-pains.—Aster aids those in labor-pains; they say the purple part of the flower should be used; one should drink it in water. *μεθ' ὕδατος ποθὲν συναγχικοῖς βοηθεῖν.—D.* (interpolation?).

Aster also aids those in labor pains even if the plant is used dry, if it be taken up and held in the left hand, and if it be tied on to the groin.—*D.*

Cited by translators and commentators of the 16th century, without addition; and onward, to Parkinson, 1640.

For Hernia.—Aster Atticus was formerly employed for hernia, —*Foster*, 1890. "Germanis Bruchkrautt, qui ad herniam puerorum, utuntur."—*Ryff*, 1543.

Several of the preceding efficacies have been claimed to cover hernia as well; and especially the one following. Confusion with Pliny's Inguinaria [*i. e.*, Aster] on account of similar properties led some to identify the modern genus *Herniaria* with *Inguinaria.*

ASTER USED FOR EPILEPSY

For Epilepsy in Children.—They say the purple part of the flower is a remedy for epilepsy in children, *ἐπιλήψιας παίδων, D.* [Its relative Conyza was used for epilepsy too.—*D.*, bk. 3, c. 136.]

The purple violet [confused with Aster] is so too.—*D.*

The medical use of Asterion is for epilepsy—"ad caducos."—*Apuleius Platonicus*, c. 400.

The purple violet blossoms . . . et morbo regio opitulantur. Lat. tr. of *Mesues.*

Aster is of aid, infantibus comitiale malum sentientibus.—*Ruel*, 1536; for "caduco morbu." *Dorstenius*, 1540.

The blew of the floure, drunken in water, is good to be given to young children, against the squinancie and the falling sicknesse. —*Lyte*; in the main repeated, *Gerarde.*

It helpeth children also that have the falling sicknesse.—*Parkinson.*

It is good against the epilepsie in children, chiefly the flowers. —*Salmon*, 1682.

ASTER USED FOR SCIATICA

Aster is a remedy for pains in regions of the hips, *in coxendicis*, if worn tied on.—*Pliny.*

The purple part of the flower is of aid in sciatica, *coxendicum doleri.—Ruel.*

Pliny addeth that being bound to the place, it is profitable for the paine in the hippes.—*Parkinson*, 1640.

It was worn as an amulet for sciatica.*—*Adams*, 1847.

ASTER USED FOR GOITRE AND QUINSY

(For Cratevas' *broncocele* seems to have included as much.) Aster, using the green plant pounded up with old axle-grease, is a remedy for broncocele, *αὕτη χλωρὰ κοπεῖσα μετὰ ὀξυγγιόυ παλαιοῦ, ποιεῖ πρὸς βρογχοκηλικούς· Cratevas*, cited in *D.*

Turgentia guttura discutit.—*Ruel, Matthioli.*

It is good for squinancie.—*Lyte.*

It is also good for swolen throats.—*Parkinson*, 1629.

It helpeth those that are troubled with quinsies, . . . it consumeth swellings in the throat.—*Parkinson*, 1640.

It is good against the quinsie.—*Salmon*, 1682.

ASTER USED FOR VENOMOUS BITES

For the Bite of a Mad Dog.—Aster is a remedy for the bite of a mad-dog, the green plant pounded up with old axle-grease, *Cratevas* in *D.* (interpolation, Sprengel).

Et rabiosi canis morsibus imponebat.—*Ruel, Matthioli.*

They are held to be good for the biting of a mad Dogge, *Parkinson*, 1629; it helpeth them that are bitten by a mad Dogge, as Cratevas saith.—*Parkinson*, 1640.

——Dioscorides' (genuine?) Euporista, bk. 2, c. 113, edn. Kuhn, pp. 313, 314, in the Theriaca for a mad-dog's bite, recommends the use of 23 plants, among which Aster does not occur; allium, cepa, silphium, plantaginis folia, apiastrum or *μελισσόφυλλον* [deemed usually, *Melissa officinalis* L.] occur, and others of little connection here.

——Pliny, bk. v., c. 6, rejoices in the recent discovery of a cure

* Pliny, bk. 25, c. 49, vaunts the virtues of his Iberis [*Iberis amara* L. ?] as an application for sciatica, "mixed with a small proportion of axle-grease"; it had recently received the fanciful name Iberis, he says, in verses praising its efficacy written by the physician Servilius Democrates (and quoted by Galen, bk. x., c. 2).

for mad dog's bite, in case of a soldier of the pretorian guard, healed in Lacetania (Spain) by drinking extract of dog-rose root; of which Riley remarks "yet this dreadful malady is still incurable notwithstanding . . . the virtues of Scutellaria lateriflora, Alisma plantago, and Genista tinctoria, as specifics for its cure." Again, bk. 25, c. 77, Pliny mentions the Alisma plantago in this connection, still found in Greece (Sibthorp) and "till very recent times esteemed as curative of hydrophobia," though without reason.

Walnuts were another vaunted remedy; Mithridates the Great, uneasy on his throne, had in his private cabinet a recipe in his own handwriting,* of which two dried walnuts were the base, closing pathetically, "If a person takes this mixture fasting he will be proof against all poisons *for that day.*" This we are told by Galen was regularly taken by the Emperor Marcus Aurelius. "Walnut kernels," continues Pliny,† "chewed by a man fasting, and applied to the wound, effect an instantaneous cure it is said of bites inflicted by a mad dog."

Magic formulae were also used, and a signet ring inscribed "Pax, max et adimax," was thought for the bite of a mad dog "to be irresistible." ‡

Of the serious practice of the ancients in hydrophobia, Dr. Millengen comparing the two great physicians notes that "Dioscorides seared the wound with iron heated to whiteness; others first excised the wounded part and then applied fire or caustic. Celsus considered submersion in water the only remedy."‡

For snake-bites, especially viper-bites, "The flower of Aster Atticus," ἀστέρες ἀττικοῦ τὸ ἄνθος, is one of the 72 plant remedies §

* So found by Cneius Pompeius after the defeat of Mithridates, Pliny, bk. 23, c. 77.

† Riley's Pliny, 4 : 515.

‡ Dr. Millengen's Curiosities of Medical Experience, 2 : 404. Lon., 1837.

§ Among which were 5 Compositae, "the Aster Atticus, Helichrysum, Helenium, Costus and Leontopetali radix" of the Euporista.

The spurious book of Dioscorides περὶ ἰοβόλων (edn. Kuhn, 26 : 77–80) mentions 32 remedies for snake bites, among which Aster does not occur; Eryngium occurs, and some Compositae, but none of the five just cited from the Euporista. Again, pp. 85–87, for viper bites in particular, 17 plants are recounted, including abrotanum, scilla, cepa, porrum, etc., and melissophyllum, but no Aster, and this treatise on poisons (thought by some to have been written by Dioscorides the Younger, perhaps 100 A.D.) ends without mention of aster or anything which could be mistaken for it.

The Geoponica, bk. viii., c. 10, says of the probably related Conyzites, that its wine "contra reptilium morsus prodest," and this plant is also praised for reptile bites by Dioscorides [the Younger?], bk. v., c. 63, and by Galen.

listed as efficacious against viper bites when used either in wine or in food; so catalogued in the Euporista attributed to Dioscorides, bk. ii., c. 115; the immediate succession being asclepiadis radix; ἀστέρος ἀττικοῦ τὸ ἄνθος; atractidis flores et folia [three others]; gentianae radix; *asteris samii* [the white earth of Samos; see Aster names], etc., etc.

Aster-blossom added to a drink is a remedy against serpents; —*bibitur et adversus serpentes.*—*Pliny.*

Aster Fumes put Serpents to Flight.—Aster puts serpents to flight if its fumes are burned.—*Cratevas* in *D.* Incensa serpentes fugat.—*Ruel, Matthioli.* It driveth away serpents if it be burned. —*Parkinson.*

The protective power of fumes of special plants is still a part of the folk-belief of Greece; "so the modern Greek fumigates his house by burning branches of dry olive, to ward against the evil eye."—*Rodd,* 162.

Compare also Pliny,* "The odor even, of Lysimachia, puts serpents to flight." Other plants of magical efficacy against serpents, mentioned by Pliny in the same connection, are his Plistolochia (*Aristolochia Plistolochia* L.) of which he says "indeed it will be quite sufficient to suspend this last over the hearth, to make all serpents leave the house"; and of his Betony [*Betonica alopecurus* L.?] he quotes the belief that "if a circle of it is traced around a serpent, it will lash itself to death with its tail." Pliny similarly attributes to serpents an abhorrence of the beech tree and the ash tree. Compare also, Bartholomaeus, etc., *infra.*

ASTER AS USED BY LOWER ANIMALS

Aster as a Remedy to the Toad.—Dorstenius, in 1540, remarking that some had connected the Aster Atticus under its name *Bubonium* with the Toad, *bufo,* narrates that "some feign that to toads Inguinalis is a great medicine, that in battles fought with spiders the toads are conquered and wounded and smitten by them. And they say that toads and other venomous creatures—aliaque animalcula venenosa—make their home for the sake of this herb in stony places [where it grows], and with this herb they refresh themselves and heal themselves."

* Pliny, bk. 25, c. 55; in Riley's tr., 5 : 119.

Dorstenius adds of this mediaeval story that "it is not only *inceptum ac falsum*, but also is contrary to all the authority of the ancients;" *i. e.*, is unmentioned by them.

Aster as a Remedy to Swine.—As Aster Atticus or Inguinaria was by some called Argemon, *fide* Pliny, it was liable to acquire the reputation of healing swine which came with that name from the Greeks, Pliny saying of Argemon that the one digging its medicinal root must do so without use of iron and with use of the formula, "This is the plant Argemon, which Minerva discovered, which she found a remedy for swine, for all such as should taste of it."—Pliny, bk. 24, c. 19. See *infra*, under *Argemon* and under *Pliny*.

Aster a Remedy to Bees.—[As the 9th, last and most fully described of the remedies for languishing bees; following *galbanum*]. Boil its roots in odorous wine, and place it as food in full baskets in the doorways of the hives.

> Hujus odorato radices incoque Baccho,
> Pabulaque in foribus plenis adpone canistris.—*V.*

Best of remedies for this flux among the bees is the root of Amellus; boiled with old Aminean wine, the roots are to be pressed out, and the liquor thus weighed out is to be given to the bees.—*Columella.*

Aster a source of Honey to Bees.—"The wild flowers most friendly of all to the bees are the Amellus, acanthus, etc.—*Columella.* Amellus, *i. e.*, Aster, thus heads this list, afterwards qualified by making three classes of wild flowers frequented by bees, thyme being the only member of the first class, Amellus, acanthus, asphodel and narcissus forming the second, armoracia and "innumerable others" making the third, the third class being particularly a source of wax.

> Apes susurro murmurant gratae leni
> Cum summo florum vel novos rores legunt.
> Bees murmur pleasingly their light susurrus,
> Culling from topmost flowers or latest dewdrop.
> —*Vergilius, hortulus.*

ASTER USED IN DYEING

Flos tinctorius primus, tinctoribus Spirensibus Schartenkraut dicitur, *Bock.*—*I. c.*, by the dyers at Speier it is called Groinplant,

or by some rendered Saw-wort or Notch-plant; and see *infra*, under *Bock.*—*Anthemis tinctoria*, its near relative, as well as perhaps both *Chrysanthemum segetum* and *C. coronarius*, have been used in dyeing. The use suggested by Bock three centuries before was suggested again by Wallroth's separation of a form of *Aster Amellus* by the name of *Aster tinctorius.*

ASTER TEMPERAMENT

The so-called temperament or nature of a plant was a very consequential part of mediaeval description, and to a less degree, of that of antiquity; and aster was diagnosed as follows:

It is not of very cold nature.—*Hippocrates*, under the name polyophthalmon.

Habet vero non minime et refrigerans quiddam ac reprimans, ut mixtae sit facultates uti rosa verum id non astringit.—*Galen.*

Est autem mediocriter digerantis facultatis, quin videlicet et modice calidum est, nec vehementer, nec ita desiccat ut contendat, maxime quam etiamnum molle ac recens fuerit.—*Galen.*

Habet etiam quod discussorium, ut mixtarum virium sit, velut rosa, sed bubonium non ita astringit.—*Aëtios.*

It is possessed of mixed powers, being discutient and cooling. —*Paulus Aegineta.*

Habet aut qō dyaphoreticum. Habet etiam nominō refrigerativō qd reperessi, ut mixte sit potentie sicut rosa, non tamen sic stipticat.—*Ortus*, 1498 edn.

Est autem mediocriter diaphoreticum, neque vehementer neque intense desiccat.—*Ortus*, again in 1498 edn.

Temperamentum. Mixtae est potentiae, uti rosa refrigerat enim, non tamen vehementer, et digerit atque exsiccat, quod scilicet illi amara insit qualitas.—*Fuchs*, edn. 1551.

Ceterum Aster Atticus digerentis ut Galenus tradit; mediocriter est facultatis, modice videlicet calidus, et non vehementer desiccans; maxime cum etiamnum mollis ac recens fuerit.—*Dodoens.*

The nature. It doth refresh and cool, and is almost of temperature like the rose.—*Lyte*, 1595 edn.

The nature. It is of a meane temperature in cooling and drying. Galen saith it doth moderately waste and consume, especially while it is yet soft and newly gathered.—*Gerarde*, 1597.

It hath not only a digesting but also no small cooling quality, and refreshing, being of a mixt property like the Rose.—*Parkinson*, 1640.

Temperate and dry in 1°.—*Salmon*, 1682.

MODES OF USING ASTER REMEDIES

PLASTERS AND SALVES

Applied as a plaster, or "emplastron," καταπλασσόμενον, for the stomach, *D.*, for buboes, *Galen*, *Aëtios*, *Ortus*.

ἐπιπλαττόμενον, Paulus Aegineta; in cataplasmata impositus, *Aetios*, Lat. tr. of 1542; supplasmatum . . . cataplasmatum, *Ortus;* emplastri modo apposita, *John Lonitzer;* impositum, *Dodoens;* laid to, *Lyte*.

Externally the leaves in a cataplasm maturates and suppurates botches.—*Salmon*.

The purple violet [*i. e.*, Aster?] leaves "per se imponuntur, et cum polenta."—*Ruel*.

Rubbed on as a Salve.—Aster or Bubonium is believed to heal buboes if rubbed on as a salve,—*illitum*.—*Galen*.

Aster was prescribed *illitus* in nearly all its uses by Ruel, 633. So the leaf of Argemonia, perhaps there confused with Aster, was a cure for inflammations if rubbed on.—*Ruel*, 429.

Aster . . . used in oyle to anoint the place.—*Parkinson*.

Pounded up with Hog's grease.—The green growing plant, pounded up by itself and mixed with old axle-grease,* is a remedy

* Pliny, 28, 37, Riley's tr. 5 : 324 + , remarks : "Fat is held in highest esteem, that of swine in particular....The older it is, the better. The Greek writers have now given it the name of 'axungia' [L. *axis*, an axle, and *ungo*, to anoint], or axle-grease, in their works....The distinguishing properties of swine's grease are emollient, calorific, resolvent and detergent....A peculiar kind of plaster is made of it for the cure of inflammatory ulcers, 75 denarii of hog's lard being mixed with 100 of litharge....The ancient physicians also set a high value on the medicinal properties of hog's-lard in the unmixed state, to anoint ulcers with it, etc....The ancients used to employ hog's-lard in particular for greasing the axles of their vehicles, that the wheels might revolve the more easily, and to this in fact it owes its name of 'axungia.' When hog's-lard has been used for this purpose, incorporated as it is with iron-rust, it is remarkably useful as an application for diseases of the rectum and of the pudenda.... It is still the usage for the newly-wedded bride, on entering her husband's house, to touch the door-posts with it, that no noxious spells may find admittance."

for the mad-dog's bite and for goitre in the throat—*ποιεῖ πρὸς ὑδροφοβήτους καὶ βρογχοκηλικούς.—Cratevas* in Dioscorides.

Similarly, *tusa in axungia*, Cratevas prescribed Argemonia as a remedy *ad strumas*, if rubbed on, especially while in the bath.

Similarly, Cratevas in his article *Achillios*, as quoted by Anguillara in his Semplici (agreeing with Dioscorides on Achillea except in this addition), reminds one strongly of his preparation of Aster: "The whole plant [Achillea] bruised with old axle-grease, cures old and evil ulcers; dry, bruised so, and mixed with honey, it is anacathartic."

Asteris Attici recens herba cum axungiae senio tusa, etc.—Matthioli, Lat. ed'n.—Cratevas Herbarius says, Pestle it green with hog's grease, against the bite of a mad-dog, and equally for tumors of the goitre.—"Che pesta verde insieme con Grascia de Porco, conserisce al morso de i Cani arrabbiati, & parimente a i tumori della gola."—*Matthioli.*

And being green, stamped, and laid to the botches or impost-humes... [it] prevaileth.—*Lyte.*

If an oyntment be made of the greene hearbe and old hog's-grease.—*Parkinson.*

ASTER USED INTERNALLY

Used in Decoction to Drink in Water.—Drinking the decoction of the purple rays in water is an aid to those in labor-pains, and for epileptic fits in children.—*D.*

The purple leaves of the flower boyled in water... good for the pains.—*Parkinson.*

Used made up in Pills.—Ad caducos. Herbae asterii baccas [pills?] eis datas manducandas Luna decrescente, cum erit in signo Virginis.—*Apuleius Platonicus*, c. 400.

Quoted almost literally by Dorstenius, 1540, but made to apply to one in labor, who must also suspend the plant itself around her neck.

ASTER USED AS AN AMULET

Tied on at the Groin.—Aster drives away pain in labor, —*περιαφθὲν τῷ βουβῶνι, ἀπαλλάσσει τῆς ὀδύνης, D.* Inguinum medicinam... jubent et juncta cinctus alligari.—*Pliny.* Prodest et coxendicis dolori ad alligata.—*Pliny.* Creditum est bubones sanare, tum illitum *tum inguini alligatum.—Galen, Ortus.*

ἀλλὰ καὶ περιαπτόμενον. "It cures buboes even when appended as a periapt." *Paulus Aegineta*, tr. by Adams.

It is applied "p̃pinatum" and "assumptum."—*Ortus.* Juxta inguinum cinctus alligari.—*Ruel.* Alligata, inguinum medeatur. —*John Lonitzer.* Buboni ad alligatum.—*Dodoens.*

Suspended from the Neck.—Etiam quod suspensum bubones sanare credatur.—*Galen.* Et ipsam herbam habeant in collo suspensam, remediabuntur.—*Apulcius Platonicus, Dorstenius.*

Merely held in the Hand.—If the dry plant is taken up in the left hand of the one in labor-pains, etc., *D.*

Inguinaria, . . . ut profit inguinibus, in manu tantum habendum est.—*Pliny.*

Merely Carried About.—Some say that this herbe putteth away all tumors and sweilings of the siege, share or fundament, yea, when it is but only carried about by a man.—*Lyte.*

Similar ancient uses as amulets were recorded of Argemonia radix—perhaps by the confusion of Argemon with Aster. "Ut profit inguinibus in manibus tantum habenda est:" see *Ruel*, de natura, 429.

Asplenon herba, ἄσπληνον βοτάνη, (=*Asplenium Ceterach* L., or *Scolopendrium officinale* L.) pro inhibendum conceptum, *D. Euporista*, bk. 2, c. 95; and also, for same purpose, Tamaricis lignum, μυρίκης ξύλον.

Philaeterium radix, etc., against scorpions and other venomous creatures, *Euporista*, bk. 2, c. 132.

Plantaginis radix, for tumors, *Euporista*, bk. 2, c. 155.

Myrtle: "to prevent ulcerations from causing swellings in the inguinal glands, it will suffice for a patient to carry a sprig of myrtle about him which has never touched the ground or any implement of iron."—*Pliny*, bk. 23, c. 81.

Other Ancient Amulets of Star-form.—The preceding amulet-plants were all used for purposes similar to those for which Aster was recommended as an amulet. The starfish was used more generally against all spells; because of superstitious belief in the potency of the star form? which may be also a reason for the ascription of such potency to the star-like aster-blossom; heedless of the fact that our destinies lie not in our stars but in ourselves. Of the use of the star-fish Pliny says, bk. 22, c. 16, "It is as-

serted also, that if the fish called the sea-star is smeared with fox's blood, and then nailed to the upper lintel of the door, or to the door itself with a copper nail, no noxious spells will be able to obtain admittance, or at all events, to be productive of any ill effects."—*Riley's* tr. 6 : 10.

Chapter 155 of the second book of the Euporista ascribed to Dioscorides is so good an example of the later superstitions regarding amulets that I quote it entire, in Latin form. It probably illustrates well the superstitious use of Aster Atticus, and to the common plantain of which it speaks the name Aster had itself been sometimes transferred, by 400 A.D., either from this community of use or of properties or from the radially-outspread leaves.

"Cap. CLV. Ad strumas amuleti ratione alligantur plantaginis radix, sinistra manu eruta et pelli illigata, lapathi agrestis radix eodem modo, uti et asphodeli radix, itemque eryngii. Pronuntiato vero prius eiusce nomine cujus gratia exquiritur, erui debet subvesperum, a vicesima octava luna usque ad tricesimam, itaque adalligari."

Amulets in Modern Greece.—Similar beliefs regarding amulets (not to mention the horsechestnut and the bean carried in pocket, or the string tied round the arm, in America to-day) have a strong hold still upon the modern Greeks, as seen in the following examples:

"A potato suspended in a bag to the person was recommended as a prophylactic against rheumatism."—*Rodd*, 165.

Garlic, *σκόρδος* in ancient and in modern Greek, is still "highly relished and believed to have mysterious health-giving properties. It is also a sovereign prophylactic against the evil eye. The baby, or the pet goat, is quite safe against this evil who wears a kernel of garlic in a little bag tied around the neck." *George Horton*, on Modern Athens, *Scribner's Magazine*, Feb., 1901.

"People in Greece often carry or wear an amulet, especially farmers and those in the country, and especially in old times, most of all about the time of the war of liberation and for the hundreds of years of fighting before that; and many old songs that date from that time or earlier, praise the amulet which the warrior carried and which made him invincible against his enemy though standing alone amid eighty shooting at him. Such an amulet is

called a *φυλακτὸν*, and is prized more and more with its age. If it has been handed down in the family from a grandfather fighting in the mountains [like the grandfather of the ex-soldier speaking], a grandfather that was also saved by it, then it is valued most. It may be of various kinds, I think. It is honored for what it had done, rather than for what it is. Instead of *φυλακτὸν*, 'watcher over me,' they also call it sometimes *τίμιον ξύλον*, 'revered wood,' from the great honor they pay to it."—*Attica*, June, 1901.

OTHER SUPERSTITIOUS MODES OF USE

Taken up without use of Iron and with Prescribed Formula.—By those who identified Aster and Argemon, its medicinal power to allay tumors and to heal diseases in swine was secured only if the plant be taken out of the ground without the use of iron, and with the words "This is the plant Argemon, which Minerva discovered, which she found a remedy for swine, for all such as should taste of it."—*Pliny.*

Ruel, quoting the knowledge of the ancients about Argemone, De natura, 428–9, cites the above, saying of the plant "an eadem eum argemone [Argemonia, Papaver and Adonis] nescio," and adding, from what ancient author does not appear, that Minerva's Argemon was taken in drink either in milk or in wine, and was, in either form, to be added to swill for swine to drink—*in colluviem poturis.—Ruel.*

So of myrtle which is to be carried as an amulet against inguinal ulcers; it must never touch iron, says *Pliny.*

Using the left hand, in taking up the root from the ground, in plucking the flower or plant, or in holding the plant.

The dry plant taken up and held in the left hand of the one suffering labor pains, and tied on upon the groin, drives away the pain.—*D.*

ξηρὸν δὲ ἀναιρεθὲν τῇ ἀριστερᾷ χειρὶ τοῦ ἀλγοῦντος, etc.—*D.*

Inguinum medicinam, sinistra manu decerpi jubent.—*Pliny.*

Sinistra manu decerpi jubent.—*Ruel*; and again,

Si arescat flos sinistra manu dolentis decerpatur, adalligeturque, sic dolores avertens malo liberabit.—*Ruel.*

Pluck it with the left hand.—*Dorstenius*, 1540. Si sinistra dolentis manu decerpatur.—*Dodoens*, edn. 1616. The dried

flowers to be taken into the right hand of the patient [inadvertence for *left*].—*Parkinson*, 1640.

There were other left-hand plants besides Aster; of one of the chief, our verbena, Pliny remarks, "Peristereon must be taken up with the left hand," and so fixed did this belief become as to occasion for it the name Aristereon,* or "the left-hand plant *par excellence*," from ἀριστερός, the left hand, Lat. *sinistra*.

These associations of left-hand plants with good fortune agree with the Roman idea respecting divination, in which *sinister* = favorable, explained as "because the Romans on these occasions turned the face towards the south and so had the eastern or fortunate side on the left, while the Greeks, turning to the north, had it on their right."—*Harpers*. But these plant associations of good fortune with the left trace to the Greek, where they ought, by this theory, to have been ominous of ill-fortune.

Time of Gathering, or of Use.—Luna decrescente, cum erit in signo Virginis.—*Apuleius Platonicus*.

PROCURING SLEEP OR FORGETFULNESS

The ancient Greeks ascribed to plants of stomachic properties the power of inducing sleep, or bringing good dreams but preventing nightmares, and of producing forgetfulness. When recommending Aster as stomachic, all this was doubtless implied to many. † The modern Greeks still hold firm faith in such plants; as shown in the folk-poem cited by Rodd, ‡ 271,

> "I shall cross the plain, the mountains, and ask the wild things in them,
> Can they not find me a drug that will teach me to forget you?"

Earlier Greeks had one plant which they named on account of this potency, the ὀνειροδοτεῖρα, the dream-bestower.

Modern Greek fairy-tales perpetuate the same idea; as in the story of "The Princess who went to the Wars," § where the Prince "opened the chamber-door and flung a sleeping-herb upon the

* So named in the Orphics, in Aelian's Natural History, and by Eustathius.

† The beliefs of many had not even this foundation; witness Pliny's use of the cuckoo amulet to produce sleep, and the bat's head dried, to prevent it (book 30, c. 48); and Democritus' use of the chameleon to procure dreams.

‡ The Customs and Lore of Modern Greece, by Rennell Rodd, Lon. 1892.

§ Geldart's Folk-lore of Modern Greece, Lon. 1884.

Princess," upon which she slept during a long journey to his own country.

Rodd, 165, describes the "beautiful-sleep bringer" of the Cretans: "In the island of Crete a plant which is common by the roadside, with whose botanical name I am not familiar, but which is known in the island as *καλοκοιμίθεια*, * the giver of good sleep, was pointed out as largely used by the good wives of the villages as a household remedy for indigestion and sleeplessness, and many were the stories told of its wonderful efficacy on patients whose maladies had defied the usual medical remedies."

Helenium or elecampane, the *Aster officinale* of some later botanists, was credited, says Pliny, with similar power when taken with wine, "having in fact a similar effect to the nepenthes, which has been so much vaunted by Homer as producing forgetfulness of all sorrow."—*Pliny*, 21, 91.

Perhaps it was from some tradition of Aster as a sleep-producer that Bock, 1536, attributes to his "Uva lupina seu Astera" power "to produce sleep if eaten."

PARTS USED

The whole plant, green and fresh, ὑγρόν, for buboes, *D.*, *Aetios;* recens, *Ortus;* verte, *Matthioli;* fresh, *Parkinson;* so the whole plant, for the mad-dog's bite and for goitre, using it green and fresh, χλωρά, *Cratevas*, recens, *Matthioli*, *Ruel.*

The whole plant, dry, as an amulet, *D.*, etc.

The leaves, for buboes, *Salmon.*

The root, for bees, *V.*, *Columella;* for swine, *Pliny*, and for human use, for ulcers, *Pliny*, under name Argemon.

——In early days the whole plant, "kraut," and root, "wurzel," were kept in stock by the apothecaries under the name Herba et Radix Aster Atticis.—*Flora Deutschland.*

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* Rodd's *καλοκοιμίθεια*, if it is the plant which Sibthorp found called *καλοκοιμιθίκι* in Greece, is one of the Compositae, *Gnaphalium Stoechas* L., "now used for the stomach," *Attica;* the Helichrysum of Dioscorides, 4, 57, who tells us how the ancients laid it among garments to keep moths away (and to impart its pleasant odor, Pliny, 21, 96); and says, as in case of its relative Aster, it was used to drink in wine for snake bites, and for abdominal troubles. Because of its golden mass of bloom, its coma or tresses, in the words of Dioscorides, it was by some called Chrysanthemum, and because of its duration Amaranth. With it, he adds, they crown the shrines of the gods. Pliny reminds us how faithfully this custom was followed by one of the Ptolemies in Egypt.

The purple rays preferred when in full flower, τὸ πορφουρίζον τοῦ ἄνθους, the purpled part of the flower, is the best (for labor-pains, in decoction; and for epilepsy), *D.*

So Dioscorides again, in the same words, of his purple violet [meaning Aster?], *D.*, bk. iv., c. 120.

Dioscorides, distinguishing his yellow, white and purple species of Anthemis, remarks there again "the purple flower is the best" (*Anthemis rosea* DC.).

So of the different kinds of the orchid Satyrion (now Serapias). Brunfels, 1 : 110, on Satyrion, quotes "ex Aggregatore Herbario" [de Dondis, Aggregator Paduanus? or the unknown Aggregator Practicus? see *infra*] as ascribing to it properties like those of Aster in curing ulcers, tumors and hemorrhoids, and particularly "quod habet flores purpureos."

Perhaps this preference for the purple part of the Aster, which inclined toward blue, may have lent its aid to the development of that superstitious preference for blue, of which Dr. Millengen writes: "To this day, flannel dyed nine times blue is supposed to be more efficacious in glandular swellings." (Curiosities of Medical Experience, 2: 140. Lon., 1837).

ASTER NAMES

THE WORD ASTER IN GREEK

ASTER, Greek ἀστήρ and sometimes ἄστρον, a star, usually occurring in this sense in the plural, ἄστρα; from the root of the equivalent Eng. *star*, Gothic *stairno*, Lat. *stella* (*i. e.*, *sterula*), Sansk. *staras*, Zend. *star;* the root conjecturally the Aryan *star* =strew, from the thought of the stars as sprinkled over the sky.

Aster in transferred sense, as name of the plant identified as *Aster Amellus* L., occurs about 160 B.C., Nicander's Georgica, (in Atheneaus 15, 683); Pliny, 27, 5; and with local modifier making it in effect a binomial, in the form Aster Atticus, Ἀστὴρ Ἀττικός, Dioscorides, 4, 118 (or 120 or 110 in various editions); which binomial continues as its name in most subsequent writings, till Linnaeus, 1753. The plant was so named from the resemblance of its radiate flower-head to a star, as both Dioscorides and Pliny declare, apparently independently of each other.

The word Aster on passing into Latin was used chiefly of flower, not for a star, for which the Romans had already t own name *stella.*

Aster in modern colloquial Greek, while still used for a st is not used for any flower, *Attica;* being replaced by *ἄστρον* the sense of the flower. It has been used in French as *Aste* "the Aster,"(Martyn, 1797).

Stars of the sky find a quick response in the poetry of mo peoples, but especially from that of the ancient Greeks; as i Homer, Iliad, xi., 62.

οἷος δ' ἐκ νεφέων ἀναφαίνεται οὔλιος ἀστήρ.

"Such as the star of fate, Sirius, when it shines forth from the clouds."

So in that celebrated line of the Iliad, viii., 555 or 551.

ὡς δ' ὅτ' ἐν οὐρανῷ ἄστρα φαεινὴν ἀμφὶ σελήνην

which Tennyson rendered literally

"As when in heaven the stars about the moon
Look beautiful,"

and which Eustathius, the great Homeric commentator of the 12th century, illustrated by citing Sappho's immortal lines about the stars, which begin

"The stars around the lovely moon,"—

Ἀστέρες μὲν ἀμφὶ κάλαν σελάνναν.

This remained still true of the Greek mind two thousand years after, and recounting the objects of nature that affect us most, we find the star still mentioned first of all; as in a Greek 16th century poem* by a Cretan beginning

Μὰ τ' ἀστήρι,—where the order of mention is star, sky, sunrise, sunset, earth, sun and moon.—The same preëminence remains in modern Greek; the star is the source of the first rhyming distich, *Ἀπ' ὅλα τ' ἄστρα, τ'οὐρανοῦ,* among Rodd's series, which he translates.

Of all the stars in heaven, but one is like to thee,
The star that comes at midnight and makes all others dim.

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* The *Erotocritus* of Vincenzo Cornaro, quoted as an early example of rhyming 15-syllable meter, *Rodd,* 211.

"Is there a Greek living to-day," says Rodd, "who does not know *τὸ πρῶτο ἄστρο*, by [the modern poet] Joannes Polemos?" remembering how he used to hear this song of star-praise in Athens—"sung by students to the soft throbbing of a guitar,"—

"The first of all the stars of night
In heaven is softly gleaming."

Modern Greek also makes much use of the star by transfer and composition; it calls a thunderbolt *ἀστροπελέκι*, "the starry axe."

The transfer from the direct use of the word Aster to the metaphorical was easy, and we find it applied early to a person; as in Euripides' "Thou Star of the Muses," *ἀστὴρ Μουσῶν*, and perhaps earlier in Sappho's song,

"Thou art, I think, an evening star, of all the stars the fairest."

Ἀστέρων πάντων ὁ κάλλιστος.

Comparison to a star, rather than metaphor, was perhaps more common to the Greeks; like Wordsworth's famed comparison of Milton,

"Thy soul was like a Star, and dwelt apart."

In the poet Plato (slightly antedating the philosopher, and writing 428–389 B.C.), the metaphor becomes for perhaps the first time distinct and fully evident; as in his lines,

Ἀστέρας εἰσαθρεῖς ἀστὴρ ἐμός· εἴθε γενοίμην
Οὐρανός, ὡς πολλοῖς ὄμμασιν εἰς σὲ βλέπω.

Stars do you gaze on, star of mine? would that I might become
Heaven, and so with many eyes look down on you in turn.

Another of Plato's star-metaphors is again a fragment of two lines only, but of a beauty such as to make Tennyson speak of

Jewels five words long,
That on the stretched forefinger of all time
Sparkle forever—

It reads:

Ἀστὴρ πρὶν μὲν ἔλαμπες ἐνὶ ζωοῖσιν Ἑῷος,
νῦν δὲ θανὼν λάμπεις Ἔσπερος ἐν φθιμένοις.

Shelley rendered it:

Thou wert the Morning Star among the living,
Ere thy fair light had fled,—
Now, having died, thou art as Hesperus, giving
New splendor to the dead,—

and adopting it as an address to Keats, prefixed the Greek lines to the original Pisa edition, 1821, of his Adonais.

From its use as metaphor, for one of beauty or fame, Aster passed among the Greeks into use as an occasional personal name. Such an Aster in Sparta was father, says Herodotus,* of that "Anchinolus, son of Aster—a man of note among the citizens" whom the Spartans sent at the head of an army against Athens with orders to drive out the Pisistridæ. Another Aster was put to death by Philip of Macedon, and of him Plutarch tells us, "He was a skillful archer, one of the garrison of Methone, who when Philip was besieging the city, aimed an arrow at him with this inscription on it 'Ἀστὴρ Φιλίππῳ θανάσιμον πέμπει βέλος,' or 'A star sends a deadly dart upon Philip,'—and deprived him of an eye. Philip sent back the arrow into the town with the inscription on it 'Ἀστέρα Φίλιππος, ἣν λάβῃ χρεμάσεται. When the place was taken Philip crucified Aster."

Most of the Greek personal star names were however given some terminational addition: as Asteria, mother of Hecate, Asterope, wife of Aeacus, Asteropea, daughter of Pelias, Asterodia, wife of Endymion, Astraea, goddess of justice, Astraeus the Titan, Asterius the giant of Miletus, whose body lies ten cubits long under its sepulchre in the isle of Asterius; Asterion the river god of Argolis, and his daughter Astraea; and a whole series of less mythic men, from Asterion king of Crete who espoused Europa, and that other Asterion son of Minos whom Theseus slew, and Asterion (son of Cometes) the Argonaut who was immortalized, about 600 B. C., as a charioteer on the chest of Cypselus,†—to Asterion the sculptor, son of Aeschylus.

Aster appears also as a plant name, Apuleius Platonicus, as synonym of Plantago major; from confusion with Aster Atticus it may be, on account of similarity of medical use; or independently, from the radiately spreading leaves.

Aster also appears as an animal name, Oppian using it for a bird bearing a starlike circle or spot on its head; and more often it occurs as a starfish, ἀστὴρ θαλάσσιος; in Aristotle, Plutarch, Oppian; in Pliny; and in Tzetzes ad Lycophron, 680 (fide Dindorf's Thesaurus Stephani, Paris, 1831).

* Rawlinson's Herodotus, 3: 268.

† Pausanias, edn. Siebel, 6: 31.

Aster also occurs once as a place-name; but a more common place-name was Asterion, name, says the Pseudo Plutarch, of Mt. Cithaeron, and of the island of Tenedos, the river of Argolis, etc.

Other uses of the word Aster unmodified are given as three by some dictionaries (as Stephanus); as name of the medicinal white-earth of Samos, q. v., *infra;* name of a compound medicament, a poultice; and name of a stomachic. The last is a form of the use as medicament, and that use, and the use for the white-earth, being apparently derived from the use for the plant Aster as a similar remedy, will be treated separately.

NAMES FOR ASTER ATTICUS

With the following names used for Aster Atticus or confused with it, are added the ancient synonyms for the other Aster then known, their Tripolium.

ALANT.—Ger. for elecampane, a word of obscure origin, *Kluge;* but apparently from its Greek equivalent, ἑλένιον, Lat. Helenium. Alant occurs in Mid. and High German. *Alantidium* also in sense of elecampane (fide Meyer) occurs in the Physica of St. Hildegardis, about 1150. *Ala* is equivalent, in Sp. and Portu. (fide Kluge).—The lack of fixity in application of the word is however indicated by present Ger. *alantbeere*, black currant.—In some way the name Alant seems early to have been confused with Aster or to have been so inclusive as to cover other Asters than elecampane, elecampane itself being an Aster to many, as of Tournefort, and the *Aster officinale* of others, as Allioni, 1785. Probably from such a supposed equivalence of Alant and Aster came the application of Alant in the form Ellend to Eryngium, which was long confused with Aster in the middle ages, from Serapion to Fuchs. See Ellend, *infra.* Ellend surely has but a superficial resemblance to *elend*, wretched, foreign: and has been current as German for Eryngium for at least 400 years.

ALIBIUM.—*Avicenna, Serapion, Matthaeus Sylvaticus, Fuchs, 1531, Euricius Cordus, 1534, Bock, 1536.* Arabic name for Aster in Latinized form, from alhiben=inguen, according to Fuchs 1531, who censures Matthaeus Sylvaticus for identifying it with Eryngium. See *infra* under *Fuchs.*

AMELLO, among Italians, *Matthioli,* 1554? 1568, and after;

Calzolaris, Verona, 1566. In the Italian vernacular, *Targioni-Tozzetti*, dict'y, 1809; *Bertoloni*, Fl. Italica, 9 : 267. 1854.

AMELLUS, *V*, only in dative, *Amello*, *V*, and *Servius;* for which some MS. give Amillo ; and in the genitive, Amelli, *Columella*, twice. See *infra*, under Vergil, for origin.

ANTIPATER (*i. e.*, plant in which the branch rises above the parent; see Filius ante patrem) seems to have been used to include Aster by Hermolaus Barbarus and by Brunfels.

ANTHEMIS, *ἄνθεμις*, distinguished from Aster by Dioscorides; but compared as if deemed the nearest in resemblance of the kindred plants ; confused with Aster sometimes among later writers if not by other Greeks ; especially in case of *A. tinctoria* L. and *A. rosea* DC., thought by Sibthorp to be the *᾽ανθεμις μηλανθής* and the *᾽Ανθεμις πορφυρανθής* respectively of Dioscorides. The latter is now called *παπούνι*, Sibthorp, 1796.—"There are white and pink and dark red kinds of *παπούνι*; it grows wild all about; it has stem and leaves like a daisy, but the flower is different, for every bud has 3–4 petals and no more, *Attica*, speaking chiefly of *Anthemis rosea* DC., which has few, sometimes 5, short broad pink rays, the whole long-stalked remote head, less than a half-inch across, and very different in nature from the Aster Atticus confused with it.

ARGEMON, *ἄργεμον* (also *ἄργεμος*, and *ἄργεμα*) name (from Gr. *ἀργός*, Hom. *ἀργεννός*, white, shining) of a small white-centered ulcer of the eye, so called by Theophrastus, Dioscorides, Galen, Pollux, etc. ; which inflammation we may distinguish in the plural as *argema*.

From the fact that it was used as a remedy for argema and other troubles of the eye, the name Argemon seems to have been applied among various Greeks, to Aster. It became confused with Argemone or Argemonia and later with Agrimonia. See full treatment *infra*, under Pliny.

Perhaps Aster had disappeared from the list of remedies for argema before *Aetios* * wrote, about 540 A.D., his chapter 26 De Argemo, in his Sermo iii., "Argemon est ulcusculum circa iridis circulum factum, partem albi, et partem nigri occupans, et album

* Aetios, 341, edn. Froben, 1542.

apparens. Quum igitur profundius et sordidum factum fuerit, ... [treat it with] obducentibus pharmacis."

ASCARACON (*i. e.*, Aster Atticon), a form of the name used by *Serapion* and by him identified with Centumcapita, and with Eryngium, cited by *De Manliis*, 170, as Ascaracon, but perhaps misprinted, and doubtless intended for what Matthioli printed 1560 as "Astaraticon, Arabic for Aster Atticus."

ASPERGOUTTE MENUE.—Fr. for Aster Atticus, *Ryff*, 1543 (see the next); *Dodoens*, 1554–1616, *Lobel*, 1576; *Gerarde*, 1597 (as Aspergoutte menne).

ASPERGOUTTE MINEUR, the Fr. name for Aster Atticus, *Matthioli*, 1560; but perhaps only in actual use for Aspergula, which was by some confused with Aster Atticus.

ASPROLOULOUDON, *ἀσπρολούλουδον*; literally white-flower; in application = daisy, and used chiefly of white-rayed compositae, but without excluding the similar species with colored rays; and sometimes used of Aster Amellus, fide *Attica* and *Scarlatos.** Only colloquial. "Daisies about Athens are of several colors, white and yellow, red and purple."—*Attica.*

Variants are *τὸ κοπρολούλουδον*, colloquial, meaning dunghill-daisy, *i. e.*, the waste-lands flower; cited as equivalent of *ἀσπρολούλουδον*, by Scarlatos, 1874.

Also, *νεκρολούλουδον*, flower of the bier, from *νεκρὸς* a corpse; "used of whatever kind of flower is put around a dead body."—*Attica.* ("In the streets of Athens to-day bodies of children are borne to the grave half buried in flowers," and otherwise exposed to view, no coffin being used in this funeral procession.—*Horton* in *Scribner's Mag.*, Feb., 1901). Jannizaris gives *νεκρολούλουδο*, colloquial only, as equivalent of Eng. "marigold"; "but instead it means whatever flower was used. They are laid loose all about the body; no special kind of flower, but more especially geranium leaves and plants and most of all basilikon, which has more smell than geranium even."—*Attica*, 1901.

ἀσπρολούλουδον is cited by Scarlatos as the common colloquial equivalent for the ancient Greek plant names *ἀνθεμὶς*, *ἄνθεμον*, *ἀνθέμιον*, *λευκάνθεμον*, *μελάνθεμον*, *ἠμεράνθεμον*, *χηράνθεμον*, *χρυσοκόμη* [illegible]; also *ἀργεμώνη*, *ἀστερὶν* [sic; *Ἀστὴρ* meant?] *ἀστερία* (*ποα*)

* Modern Greek Lexicon by Scarlatos Byzantios; Athens, 1874.

[here referring evidently to Pausanias' *Ἀστερίωνα ὀνομάζουσι καὶ τὴν πόαν ταύτην.* See *infra*, under Pausanias.] The last three names at least had been names of Aster in ancient Greek.

ἀσπρολούλουδον is cited by other dictionaries as follows: Legrand, Mod. Gr. and Fr., 1882, "*ἀσπρολούλουδου*, marguerite paquerette."—Jannizaris, "Eng. & Mod. Gr., as actually spoken," N. Y. 1895; "daisy, *ασπρολούλουδο*, colloquial only."—Contopoulos, Mod. Gr. Lex., Smyrna and Lon., 1868, "*ἀσπρολούλουδον* = *λευκάνθεμον*, = daisy."—Sibthorp ascribes *ἀσπρολούλοδα* as present name of Bellis perennis L.

Its component, *ἄσπρος*, white, is seen in *Aspropotamo*, mod. Gr. name of the river Achelous; *Aspromonte*, the white-crowned mountain, (often snow-capped, being nearly 7000 ft. high), in Calabria, Italy, where Calabrian Greeks have preserved a Greek dialect perhaps since they were Magna Grecian colonists; *Aspramonte*, the mediaeval form of the word, name of an Italian epic (Milan, 1516) celebrating a defeat of the Saracens by Charlemagne near the mountain. Asprocephalus, *ἀσπροκέφαλος*, is the mod. Gr. name of a common white-flowered umbellifer of the genus Ammi.

The other component, *λούλουδον*, a flower, is a word not apparent in ancient Greek but very prevalent in the modern; not from the Turks, who say *tchitchek*, a flower: not in Albanian or Slavic so far as consulted: claimed instead to be a native growth. The word exists in many forms; as shown in these citations:

λούλουδα, in a Greek song which Pashley * heard

Μάρτε† *μου μὲ τὰ λούλουδα,*
Ἀπρίλι μὲ τὰ ῥόδα, ‡

i. e.,—March brings me the daisy,
April brings the rose.

Form *λέλουδα* occurs in a song quoted by *Rodd*, 270,

Ὅλα τὰ λέλουδα τῆς γῆς, τ' ἄνθη τοῦ παραδείσου,

"All flowers that are found in earth and the blooms of Paradise
The angels brought together to fashion this thy form."

Form "*λουλούθια* is the right form; sound the *θ* like *th* in *this*. *ἀσπρολουλούθια*, that is the true Greek for daisy and many other flowers."—*Attica*, 1901.

* Pashley, Travels in Crete; Cambridge and London, 1837.

† *τὸν Μάρτιον*, Mod. Gr. for March.

‡ *τριαντάφυλλον* is their more common name for rose.—*Pashley, Attica.*

Form *λουλούδι*, a flower, *Contopoulos*, 1868.

Form *λουλουθάκι*, which has been cited as a mod. Gr. specific name, "is not so but means 'one little flower,' and is what any Greek girl might say if anyone asked her what blossom she held in her hand," *Attica*.

Compare also mod. Gr. *λουδάκι*, indigo (Contopoulos, 1868).

Compare also form *λουλάκιον* which appears first, it seems, in *Stephen Magnetes*,* about 1100 A.D., in Latin version as Lulacium and Lulakion: supposed by Meyer to mean Scolymos because of a form *ἀγριολουλάχη* (in Dufresne's Glossary of Mediaeval Greek) attributed to Scolymos or Artichoke. *λουλάκιον*, however, requires to have its similarity to Persian *Lilák*, lilac, explained.

ASTARATICON.—Arabic form of Aster Atticus, *Matthioli*, 1560.

ASTER ATTICUS (aster acticus, *Ortus*, *Caesalpino;* atratisus, *Avicenna*), the true Aster Attick, *Parkinson*, 1640. This binomial first occurs in Dioscorides, bk. 4, c. 118, and in the Euporista attributed to Dioscorides, bk. 2, c. 115. Gorraeus, about 1550, put the reason for the specific name in these words: "quod autem in Atheniensi agro optimo et frequens nasceretur, *Ἀττικὸς* appellata fuit."

Similar geographic binomials in Dioscorides are his Acantha Arabica, which Sibthorp thought to be *Onopordon Arabicum* L.; and his Batos Idaia, *βάτος Ἰδαία*, "quia copiose in Ida nascitur;" = *Rubus Idaeus*, L.; *D.* bk. 3, c. 38.

The development of such a binomial is seen arrested just short of the preceding stage in Damocrates, the bucolic poet, in at least four different examples, as his *οἰσύπου τῆς Ἀττικῆς*,† "of the hyssop of Attica."

Binomials similar to his Aster Atticus, but not geographical, are quite numerous in Dioscorides and include as examples, some of them transliterations from the Latin,—(in this partial list I precede the Greek form by its Latin translation):

Symphytum petraeus,	*Σύμφυτον πετραῖον*,	4, c. 9.
" aliud (another)	" *ἄλλον*,	4, 10.

* See Meyer, iii., 375.

† Grk. Bucolic Poets, edn. Didot, 115, line 71; cf. line 25, and pp. 121, 127.

Polygonum aviculare,	*Πολύγονον ἄρρεν*,	4, 4.
" (female)	" *θήλου*,	4, 5.
(perhaps, Hippuris vulgaris).		
Veratrum album,	*Ὑπράτρουμ ἄλβουμ*,	4, 148.
" nigrum,	*Βεράτρουμ νίγρουμ*, 4, 16;	4, 149.
Viola purpurea,	*Ἴον πορφυροῦν*,	4, 120.
" agrestis,	" *ἄγριον*,	4, 120.
Strychnus hortensis,	*Στρύχνος κηπαῖος*,	4, 71.
" somniferum,	" *ὑπνωτικός*,	4, 73.
" furiale,	" *μανικός*,	4, 74.
" Halicacabum,	" *ἀλικάκαβον*,	4, 72.
(probably Physalis Alkekengi).		
Equisetum sp.,	*Σάλιξ ἐχυνάλις*,	4, 46.
(by transliteration, Salix equinalis).		
Iris agrestis (Xyris),	*Ἶρις ἀγρέστις*,	4, 22.
Artemisia tenuifolium,	*Ἀρτεμισία λεπτόφυλλος*,	34, 118.
Trixago palustris,	*Φριξάγω παλούστρις*,	3, 115.
Lilium regium,	*Κρίνον βασιλικόν*,	3, 106.
Lychnis coronarius,	*Λυχνὶς στεφανωματική*,	3, 104.
" sylvestris,	" *ἄγρια*,	3, 105.

Similar binomials from Dioscorides the younger or the author, perhaps 100 A. D. of the alleged 5th and 6th books of Dioscorides, one or both, include

Ἴον δασυπόδειον, *Ἴον πριαπήϊον*, *Ἴον ἄγριον*, and *βιόλα πυρπούρεα*, or four species of violet; *ἕδερα πλευβιάτικα*, *κονύζα μεγάλη*, etc.

The Pseudo-Dioscorides, author of the Euporista, before 350 A.D., in one paragraph, bk. 2, c. 115, mentioning his 72 efficients against viper-bites, uses 12 or more binomials, of which 10 are plant-names, viz.:

ἀκάνθη λευκή,	*νάρδος Συριακός*,
ἀριστολοχία μακρά,	*πήγανον ἄγριον*,
βρυωνία λευκή,	*βρυωνία μέλαινα*,
ὀρίγανος ἡρακλεωτική,	*ἄστῆρ ἀττικός*,
κύμινον ἥμερον,	*κύμινον ἄγρευον*

It will be observed that the chief difference between these binomials and those of Linnaeus is simply that of his universal

application of the system ; those of the ancient Greeks being used only in the cases where they desired to distinguish two or more plants felt by them to be closely related.

Why then did the Greeks use the binomial for Aster Atticus? The first to use the binomial was the physician, Dioscorides ; the poets did not use it. Doubtless it was used to distinguish it in medicine from the other great Aster of medical use, Aster Samius the white earth of Samos, and to distinguish it from the numerous medical preparations called Aster, for which see *infra*.

ASTERION, *i. e.*, little Aster, little star, *ἀστέριον*, the same as Aster Atticus, *D.* (interpolation ?), *Apuleius Platonicus*, *Simon Januensis*, *Ortus*. "I have not heard *ἀστέριον* for a flower in modern Greek," *Attica*.

——Asterion occurs in Dioscorides for two other plants ; for Canna sativa, and for Spondylium.

——Asterion, from their star-like spots, was also given by the Greeks as name of a kind of spider or Phalangium, *Nicander*, Ther. 725, and to a lizard.

ASTERION.—*ἀστερίων* ; *Pausanias*, bk. 2, c. 17 ; the same word as the last, assimilated to the pronunciation of the river *ἀστερίων* ? by which he found it growing (but deemed by *Bock*, 1536, to be so different a plant as Marrubium).

ASTERISCUS, little aster or little star, *ἀστερισκος*, *Theophrastus*, 4, 13 ; *D.* (interpolation ?) 4, 118 ; occurs also *Apuleius Platonicus*, c. 60 (fide Stephanus' Thesaurus) ; also listed as "*Ἀστερίσκος καὶ ἀστέριον ὁ ἀστὴρ ἀττικός*, Astericum," in Lexicon MS. ex Cod. Reg., 1843 (Paris ; fide Stephanus) ; spelled Asteriscon by *Gerarde*, 1597.

——Modern botany uses Asteriscus as the name of a composite genus* (separated in part from Buphthalmon L.), so named by transfer from a variable use in the 16th and 17th centuries for many small-flowered plants, which were by others classed in Aster ; Cornut, 1635, publishing Aster cordifolius L. as an *Asteriscus*.

Modern Greek does not retain Asteriscus as a flower-name (fide dictionaries ; nor in popular unwritten use, *Attica*) but retains it in the use (ancient Greek, English, etc.) of *asterisk*, and as the

*Of which A. aquaticus (L.) Moench was found in Greece by Sibthorp.

special name of a star-like mark on the plate placed under the sacrificial cup, in the Greek communion-service.*

Ancient Greek also used the further diminutive *ἀστερίσκιον*, "little star, the boss, or knob on a helmet."

ASTRON, *ἄστρον*, Scarlatos' Dict. of Mod. Gr., 1874; Rinck's do., 1876; "*ἄστρον* is the name we Greek people call the flower," *Attica*, 1901; "*ἄστρον*, a star, and a kind of flower, like *ἀσπρολούλουδο*," Scarlatos, 1874; "*ἄστρον*, a star, masc., and *Aster blume*, fem.," Kind, Dict., Mod. Gr. and Ger., Leips., 1876.

ATRATISUS.—Avicenna's name representing Aster Atticus after passing through transliteration into Arabic and again into Latin, *Fuchs*, in Brunfels' De vera, 1531.

ATTICA STELLA, used for Aster Atticus by *Matthioli*, edn., 1560; (in distinction from Stella for Alchemilla) and *Pena* and *Lobel*, 1570.

BALTOCRATES, *βαλτοκράτης*, modern Greek name cited for Aster Atticus in *Lenz*, Botanik in alten Griechen und Römer, 469-Gotha, 1859.—If correctly cited it might have a meaning like the English "Pond-beauty," if from Byzantine Greek *βάλτη*, a pool, and *κράτος*, strength, power, glory.—Probably it has no connection with Baltos, modern name of part of Aetolian Greece. An explanation offered is that *βαλτοκράτης* is *βάλτη* + *κρατῆρος*, "the pool of the rock-basin," *Attica*; if so it may have been intended by the original Greek informant as specifying the locality, not as naming the plant.

BOBAS.—From repute curative of inguinal buboes; *Clusius*, 1564, found the Spaniards of Castile using the name for what he [and they?] deemed to be Aster Atticus, and modern botany calls *Pallenis spinosa* Cassini. Bobas is cited as the Spanish name of Aster Atticus, by *Lobel*, 1576; *J. Bauhin*, 1650; *Gerarde*, 1597.

BOOS OPHTHALMON.—Early form of Boupthalmon, q. v.; *Diocles? Galen.*

BOVIS OCULUM.—*Hermolaus Barbarus;* see Oculus bovis, the more common form.

BOUBOS.—"*βουβός*, mute," is given as a modern Greek plant-name by Legrand, 1882; probably with no connection with the

* Lowndes, Mod. Gr. and Eng. Lexicon, Corfu, 1837.

ancient *βουβών*, and *βουβώνιον*, which he cites as still surviving (in literary Greek only?); and if not, then with no connection to the similar Spanish Bobas.—If *muet* was misprint for muguet or muguette, it becomes a synonym for Convallaria, and Aspergula, and for nutmeg; all were so called by Lobel.

BRITANICA, or Herba Brittanica.—A name from Dioscorides, became confused with Aster, *fide* J. Bauhin; and gave name to *Inula Britannica* L., which Sibthorp, who found it in Greece, deemed *κονύζα τρίτα*, *D.*

BRUCHKRAUTT.—Ger., *Ryff*, "on account of use for hernia," 1543; *Dodoens*, 1554–1616; *Lobel*, 1576; *J. Bauhin*, 1650.

BUBONION, *βουβώνιον*, = "the Groin plant," *Riley*, so named from its repute as a cure for inguinal tumors or buboes, (Gr. *βουβών*, the groin): *D.* (interpolation?) *Pliny*, *Oribasius*. *βουβών*, the groin, is given as still in use by Contopoulos, 1868 (though his printer reduces it to *grin*).

BUBONIUM, Latinized form of the preceding; all late mediaeval and renaissance writers, *Ortus*, etc.; with transfer to a related Inula of similar repute. Tabernaemontanus, 1588, used it as name Bubonium for two or more species, one of which appeared later as the *Aster Bubonium*, Scopoli, *Inula Bubonium* Jacquin, and is now known as *Inula salicina* L. and *I. spiraeifolia* L. Desfontaines claimed that it was the true Bubonium or Aster of Pliny.——

——The umbelliferous genus *Bubon* L., was named from a similar reputation but without confusion with *Bubonium*.

——The preceding, it will be noted, have no affinity with *bufo*, the toad, or *bufonius*, sheltering toads (as the familiar *Juncus bufonius* L.); from disregarding this difference a whole fable about the Aster relieving the wounded toad grew up in mediaeval Germany (see Dorstenius).

——Nor have they any more affinity with the modern Greek plant-names *βόρβοι*, *βόλβο*, *βόρβος*, etc., for species of Hyacinthus which are names derived from its bulbous root.

BUCHKRAUT, in Ger., *Lobel*, 1576, misprint for Bruchkraut.

BUPHTHALMON.—*Βούφθαλμον*, of *Diocles* and *Galen*, treated under Hippocrates, has dropped out of use from modern Greek. Retained in modern botany as a name of composite genus *Buphthalmum* L., two Greek plants were so classed by Sibthorp,

B. aquaticum L. (now in Astericus) and *B. spinosum* L. (no Pallenis) both occurring in Zante and elsewhere, the latter th known at Zante as *καρφόχορτον* or "bur-grass." See under *A guillara*, etc. The *βούφθαλμον* of early Greek mention, at least Dioscorides, was deemed by Sibthorp to be the *Chrysanthemu segetum* of Linnaeus, known in Greece now as *τζετζεμπόλα* (like *coronarium*) and in Laconia as *κουκουβαγιά*.*

BUPHTHALMUM.—Brunfels 3; 8, last line, "Buphthalmum bovis oculum appellent" speaking of name Herba Paralysi here his Buphthalmum perhaps includes Aster, Bellis and Leuca themum (and others ?). See Oculus.

CALAMARIS, or Calioremares, *καλαμάρης*, *D*, Latin name *Aster Tripolium* L., perhaps in sense of sea-grass, from *calam* a reed.

CARICAMON.—A name in *Serapion* for *Aster Tripolium* (due perhaps to transliteration of its name *καλαμάρης*, Sprenge

CENTUMCAPITA, "hundred-heads," name used by Pliny a writers later to the Renaissance for Eryngium. After the conf sion between Eryngium and Aster Atticus was begun by Serapion blending of the two, and was beginning to cause uncertain among the compilers, the name Centumcapita probably som times covered Aster, as in *De Manliis*, c. 1450 (in Brunfels' D vera, 170. 1531) saying of Serapion's Ascaracon [Aster Atticon "est coelestis coloris, . . . [in distinction from Centumcapita alba sed centumcapita alba est species spinae," and perhaps in *Hieron mus of Brunswick's* Apodixis, 193, under "Manstrew, in Lat Centum-capita . . . oder Ellend . . . mit hymmelblaw farben." This or the other Centumcapita (Eryngium) is by *Platearius* Circa instans called wrongly Affodillus, fide *De Manliis*, 170.

CHAMOMILE.—Camomile, *χαμαίμηλον*, *D.*, *χαμόμηλα* mod. G —Chamomilla (*Bock* 1536) and Camamilla, Ital., *Matthioli*, etc. = *Matricaria chamomilla* L., thought by *Hermolaus Barbarus* 1492, to be perhaps the Amellus of Vergil; rejected by *Wedel* 1646. The Chamaemelum aureum of contemporary writers wa

* Modern Greek uses, however, many other plant names compounded with *βοῦς* as *βούξυλον*, or *βουξύλια*, "oxwood," elder-tree, *βουμάχιον*, "oxbane," *βουκράνι* "oxlip," cowslip, *βούγλωσσον*, "oxtongue," bugloss, *βούτομος*, Butomus; Lown gives all of these, Contopoulos a few.

emed by *Bock*, 1536, to be yellow Aster Atticus; vide *infra*, der *Bock*. *J. Bauhin*, 2: 1045 quotes Bock as calling Aster ticus "Chamaemelum tertium."

CHELIDONIUM, see Herba chelidonia.

CHRYSANTHEMUM, *χρυσάνθεμον*, *D.*, *C. coronarium* L. (*Pinardia coronaria* Less.), not properly ever a synonym for Aster Atticus, but became confused with it on part of those at the Renaissance who thought Aster included yellow rays; confusing with Aster chiefly *C. coronarium* L., the crown daisy, "frequent about roadways throughout Greece and the islands, and known to-day as *Τζιτζιμπόλα*; and in the Archipelago as *μανταλίνα*," *Sibthorp*. *Τζιτζιμπόλα* I have heard, but it is not the common name for chrysanthemum that I know; I hear chrysanthemum called *δενδράχι*, little tree," *Attica*. Legrand, 1882, gives Mod. Gr. *χρυσάνθεμον* as now equivalent to English *marigold*; probably meaning Corn Marigold and Crown Daisy, old names for *Chrysanthemum segetum* and *C. coronarium* L.

CONYZA, *κονύζα*, distinguished from Aster by Dioscorides, but much blended with it among later writers, and perhaps among many of the Greeks; "*κονύζα μείζων*, *D*, is *Erigeron viscosum* L., *κόνυζα* hodie, frequent in Greece and the Archipelago," *Sibthorp*, now *Pulicaria viscosa* (L.) Cassini.

DODECAMINITIS, *δωδεκαμινίτις*, the twelve-minutes' flower, quick-losing flower; name found by *Anguillara* about 1529–1539 in use in Zante for his Filius-ante-patrem (q. v.), *i. e.*, Tragopogon.

ELLEND (a form of Alant, the Elecampane, Inula Helenium, the Aster Helenium and Aster omnium maximus of early German and French writers) seems to be used for *Aster Amellus* L., *Apodixis*, 193, 1531. See Alant, *supra*.

ESPARGOUTTE, Fr. (see Aspergoutte, its more usual form), J. Bauhin, 1650.

ESTOILLEE, Fr. for Aster Atticus, *Lobel*, 1576.

ESTRALLA-DA, Sp. for Aster Atticus, *J. Bauhin*, 1650.

ESTRILLE, Fr., *Gerarde*, 1597.

FILIUS ANTE PATREM, seems to have included Aster when used for a Buphthalmum-like plant by Brunfels, 1536; and when by him made a synonym for his *Antipater*; and was thought an equivalent by Anguillara, at about that date. See Anguillara, *infra*.

GARYOPHYLLON; *Brunfels* 3: 45 (1536), distinguishes 1st, the common Garyophyllon of Pavia and other parts of Italy (Dianthus), and 2d, the common Garyophyllon also called Cheiri (Cheiranthus Cheiri), 3d, another Garyophyllon "cerulea, ... vulgari nomine Roemisch Negelin, etiam si, odore minus grato." The third may possibly include Aster.

GROIN-PLANT, the, name made for it by Riley when translating Pliny, rendering *Herba Inguinalis.*

HELENIUM.—Usually kept distinct from Aster, whether applied to elecampane or to other plants; but sometimes blended with it, as by Philip Miller, 1733, who writes "Aster...It is also called Helenium of ἥλιος the Sun, or as others say, of Helena the Daughter-in-law of Priamus." See *Alant* and *Ellend.*

HERBA INGUINALIS, see *Inguinalis.*

HERBA CHELIDONIA, *Sammonicus*, 693, "Herba chelidoniae fertur cum melle mederi" [to be used for ulcers, etc.] may be intended for Aster Atticus or confused with it: as the Chelidonia minor was long claimed to represent Amellus; see *infra*, Vergil.

So Sammonicus' Chelidonia, line 764, used for "Igni sacro,"—q. v. See Matthioli, who observes that this "small celandine" cannot, because a flower of the swallow's coming in spring, be the Aster Amellus L.—Several swallow-songs are still current in Greece, as one which says "Wake up, Chelidon, wake up and say 'Wake up little bush [plant of small celandine] and make your flower'" *Attica*, 1901.

HERBA PARALYSIS; a name much used in the middle ages for Primula, which was by some writers confused with Aster Atticus and with Amellus, and which was also called Hymmelschlüssel in Germany (*Apodixis*, 1531). Aster may perhaps have been included (with Bellis perennis) in the "Herba-Paralysis minor" of *de Manliis*, c. 1450, "cuius flos similis Camomille est." The Herba Paralysis of Hermolaus Barbarus is Primula veris; he uses *Margaritum* for Bellis.

HERBA STELLA, a form for Stellaria, *i. e.*, Aster, and other plants. Herba Stella is a synonym cited by *Dodoens*, Pemptades, 109, for *Plantago major* L. Herba Stella is cited as a name common in Italy for Plantago Coronopus *Manardi*, 1523, *Anguillara*, 1561, *Gesner*, 1561; *Dodoens*, 1583; the Stella maris of *Tabernaemontanus*, 1588.

HERBA STELLARIA of some, Parkinson, 1640.

HERBE DE L' ESTOILLE, Fr. for Aster Atticus, Fuchs, 1551.

HIMMELSCHLÜSSEL "is the name used by everybody at Passau for this flower [*Aster Amellus* L.]. It grew up a hill in a dry place on a grassy slope, at the edge of a meadow where we ought not to have gone in for it, because they were to cut the grass for the cows; so we had to go in when there was no one looking. It was on the border of woods. The plants grew a foot or two high, one flower at the top of a slender stalk. The color was blue, not very dark, just about like the sky, and that is why it is called Himmelschlüssel, because it is of the blue of the heaven. Each flower has a yellow spot in the middle. The little blue leaves all about the yellow spot were a little broader than in the picture [Martyn's, colored]. There wasn't any of it growing about home except that one place; and everybody knew that that was the place to go to, to pick it. We would wear it, and would keep it in the house in water. It blossomed at a very hot time in the summer; perhaps in August. The year I was leaving home [1898] I heard the little children say they were going out to pick it.—There is but one other flower in Germany there [a Hieracium?], I can faintly remember, that is like it, I mean it has the same shape; it is pale yellow and grows up like the dandelion; but it is not just like the dandelion, its stalk is more thin.—Sternkraut is a name I never heard, nor Megenkraut, nor Schartenkraut." *Bavaria.*

HYMMELSCHLÜSSEL, name apparently intended for Aster Amellus L., and for Primula veris, by Hieromymus of Brunswick, c. 1490?, in Brunfels' De vera, 190. 1531.

HYOPHTHALMON, or Latinized, Hyophthalmum, *δόφθαλμον*, *D.*, (interpolation); so quoted by translators and commentators, but overlooked in dictionaries, even in Stephanus' Thesaurus, even in the Didot edition of 1865, until it was noticed by Coumanoude, appearing in his Greek Lexicon of Uncollected Words, from ancient and modern writings, Athens, 1883, as follows:

"*δόφθαλμος*, plant also called Aster Atticus, in Latin Inguinalis, Apul. herb. 61."

The only copy of Apuleius accessible contains no synonyms whatever for its "61, Asterion," *i. e.*, "Aster Atticus;" but this may be the defect of the edition.

The word ὗς, a sow, which was understood to enter into this name, is now archaic in Greece, γουρούνα and σκρόφα taking its place colloquially, *Jannaris*, 1895.

Explanations of Hyophthalmum were "id est, suis oculus," *Bock*, 1536; "id est, suillus oculus," *John Lonitzer*, 1543; "quod suis vel porci oculum," *Bodaeus*, 1646.

For my explanation of Hyophthalmum as originally merely a part of the word *polyophthalmon*, see *infra*, under *Hippocrates*.

INGUINALIS, sc. herba; or Herba Inguinalis; *D.* (interpolation ?) *Pliny* & *Apuleius Platonicus* in some MS. Dorstenius, 1540, does not entitle his plant Aster at all, but names his chapter "De Inguinali," continuing "Inguinalis magna sit medicina," etc. From its use applied *ad inguen*, for tumors, etc. Varied into such forms as Inguinaria, *Pliny*, Inguinialis and Ynguinialis, *Ortus*, Unguinialis, *Gart der Gesundheit*. In Italian, Inguinale, used by Matthioli in his Italian edition, 1568, as his principal alternative for the name Aster Atticus.

INGUINARIA, form of Inguinalis (q. v.) in Pliny, still used in description as late as Rondelet, in Lobel, 1576, and as Morandi, 1744; meaning the same plant, as most writers judge; Robertus Constantinus, in his Greek lexicon (Geneva, 1592), deemed it different, saying "Nam alia est inguinaria quam argemonem vocari tradit Plin, 26, 9, cujus vis excellens ut bubonio ad persananda inguinum vitia." Some, as Billerbeck, adopting this idea of a different Inguinaria from Inguinalis (though the mediaeval Ortus, etc., made them the same) have identified Inguinaria with the modern *Herniaria hirsuta* L.

ION PORPHYROUN, ἴον πορφυροῦν, Viola purpurea, purple violet. This name, it appears probable, was not only used for *Viola odorata* L., as by *D.* and *Pliny*, *V.* and *Columella*, but also for *Aster Atticus* L., by some in Greece, from which the ascription of Aster-properties to Viola which we find in *D.*, 4, 120, was a natural result. See *infra* under *Dioscorides*.

The modern Greeks of Athens still use ἴον as name for the true violet, *Viola odorata* L., not only among the educated but among the unlettered, *Attica*.

IRINGUS, also Iringo, Iringion, Eryngo, Eryngium, *Iringi*, etc., Irringus, of *Simon Januensis*, Irincii et Salvinca of *Piero de Crescenzi*

(also as Salvida), Iringum of *Dodoens*. Seems to be used for Aster, *Apodixis*, 193, 1531; as perhaps in part by *De Manliis*, c. 1450. A figure derived from genuine Eryngium was used for Aster Atticus in *Ortus*, 1498, and in *Gart der Gesundheit*, 1485.

KLEIN MEGERKRAUT, *Ryff*, 1543.

KLEIN STERNKRAUT, (for *Aster Alpinus* L.) *Camerarius*; 1586?

KROTTERKRAUT, *Gart der Gesundheit*, 1485 = "Toadwort," from Krōte, a toad, in allusion to the mediaeval fancy of its relieving the poisoned toad when fighting spiders, narrated by Dorstenius, 1540.

MAÑS-TREW or Mannes-trew (a German name for Eryngium), seems to be used to cover Aster as well, *Apodixis*, 193. 1531.

MARIGOLD. Legrand, Mod. Gr. and Fr. Dict., 1882, lists as a plant-name "*βουβώνιον*, soud, plante," soud being a French name for marigold. Probably Aster Atticus was meant, (called Purple Marigold, q. v., as English book name, by Parkinson, 1640) and probably this *βουβώνιον* is only a book name taken up from Dioscorides.

MEGERKRAUT. Klein Megerkraut, Ger. for Aster, *Ryff*, 1543. Megerkraut, *Dodoens*, 1545–1616; *Lobel*, 1576; *Gerarde*, 1597; *J. Bauhin*, 1650. See *Wegenkraut*, p. 80.

MELISSOPHYLLON or Meliphyllon (= *Melissa officinalis* L.; others say *Melittis melissophyllon* L.), given by an ancient gloss as equivalent to Amellus of Vergil; either because already confused (being both honey-yielding plants) with Aster; or because the scholiast, regarding Vergil's remarks about the bees only, would identify Amellus with balm; concerning which see *infra*, under *Palladius*; and *Simeon Seth*, who said of it, "Bubones laedit," as if of Aster.

MERIDA, or Meris, *μηρίς*, *D.*, name for *Aster Tripolium* L., perhaps has not reached us in original form.

MUGUET, PETIT, given as French for Aster Atticus by *Fuchs*, 1551, *J. Bauhin*, 1650. Lobel, 1576, gives Muguet and Muguette as names of Convallaria, Aspergula and of nutmeg. Evidently those who identified Aster Atticus with Aspergula were the means of the misapplication of Muguet to Aster.

OCULUS BOVIS, translation of Buphthalmum, and applied espe-

cially to Leucanthemum, but apparently sometimes with wide scope and covering Aster; as *Hermolaus Barbarus*, 1492.

OCULUS CHRISTI.—*Lobel*, 1576, gives this as the Montpellier name for Aster Atticus; but intends the plant Pallenis, though misquoted as meaning *Aster Amellus* L.

OCULUS CHRISTI MINOR (*Inula montana* L.) or *Aster luteus*, *Dalechamp*, 1587.

OEIL DE CHRIST (*i. e.*, Oculus Christi, in 1550 current name of Pallenis spinosa at Montpellier, Fr.; see *infra*, under *Anguillara*); cited as French name for Aster Amellus L., Foster's Encycl. Med. Dict., N. Y., 1890; but perhaps Pallenis was still intended.

PETIT ESPARGOUTTE, Fr. (see Aspergoutte), *J. Bauhin*, 1650.

PETIT MUGUET (Convallaria and other plants are called Muguet). Fr. for Aster Atticus, *Fuchs*, 1551; *J. Bauhin*, 1650.

POLION, Poly, πόλιον, a doubtful plant, said to be *Teucrium Polion* L., famed from Hesiod onward, confused by Pliny with *Aster Tripolium* L. The πόλιον Ἀφροδίτης, polion Veneris, of the Egyptian "Prophets" cited by Dioscorides' interpolator, was Dioscorides' Periclymenum, *Lonicera Caprifolium* L.

POLYOPHTHALMON, πολυόφθαλμον, = the plant many-eyes; occurs but once as a plant name, in Hippocrates, Art. 830, interpreted as being the βούφθαλμον of Diocles by Galen; which it may have included; but probably included also the Aster Atticus of Dioscorides, and may have been its synonym originally written where δύφθαλμον appears in the present existing MSS. See p. 73. πολυόφθαλμος as an adjective, *many-eyed*, occurred in ancient Greek in literal sense though a rare word, as in Diodorus Sicuus, and in Pollux; its poetic equivalent πολυόμματος is used of Argus by Lucian; and in the sense of "the vine bearing many buds," πολυόφθαλμος ἄμπελος occurs in the Geoponica, 5, 8, 1. Both words are listed as adjectives in use in modern Greek by Legrand, 1882, and Contopoulos, 1868; but no existing plant-names from them are now known. Similar compounds included the ἀστεροόμματος, of the Orphic Hymns, νυκτὸς ὑπ' ἀστεροόμμασιν ὄρφνην, "the dusk of night with its starry eyes;" the modern κυανόφθαλμος, blue-eyed, and γαλανομμάτης, colloquial for blue-eyed (*Jannaris*):

Greek names in ὄφθαλμος have as a whole become rare or little-used. ὄφθαλμος itself is lost in many parts of the Grecian region,

as in the Cretan form of Greek which retains it only in the form * φθαρμός, sorcery, the evil eye, the βασκανία [= fascination] of other parts of Greece.

But to the ancient Greek, to compare a flower to an eye was a most natural impulse. Dioscorides says of his chrysanthemum, its flower-head is ὀφθαλμοειδῶς κυκλοτερῆ; *i. e.*, "oculi effigie orbiculatus"; and his name βούφθαλμον he pauses to explain as because the flower is ὀφθαλμοειδῆ. Ancient plant names formed to compare the flower to an eye were often fanciful; as

ὀφθαλμὸς πύθωνος, name among the "Prophets" in Egypt for Stoechas, *D.*, 3, 28.

ὀφθαλμὸς τύφωνος, *Apuleius*, *Pl.*, 42.

βούφθαλμον, *Galen*, βούφθαλμον, *D.*, ox-eye, also called βοῦς ὄμμα in the Anthology, ζωόφθαλμον, *D.*, 4, 89. The same plant was known in Persian as Khaudschaschm, *i. e.*, oculus bovis, says *Avicenna*, fide Sprengel, Diosc., 26, 561. In Italian it had become Occhio di Bue, and in Greek Buftalmo, *Matthioli*, 1568.

βούφθαλμον and ζωόφθαλμον were also used, *D.*, 4, 88, as names of houseleek.

POTAMOGETON, ποταμογείτων, *D.*, = river-dweller; a name for *Aster Tripolium* L., *D.*

PSYCHE, ψυχή; = the breath, the life, the soul; a name for *Aster Tripolium* L., *D.*, applied in consequence of the reputation of its flowers as transitory, changing color three times in one day and then perishing; see *D.*, 4, 133; and Lobel, *De Tripolio.*

PURPLE MARIGOLD, *Parkinson*, 1629 and 1640, forms this as an English name for his Aster Atticus due to use of name "corn marigold" for its relative *Chrysanthemum segetum* L.?

PURPLE VIOLET, for *Aster Amellus* L., see Viola.

RATHIBIDA, ῥαθίβεδα, *D.*, interpolation? Rathibia, *Bock*, 1536. Rathibis barbarum est, "it is known among the barbarians as Rathibis," *John Lonitzer*, 1543; otherwise it retains the form of *D.*, Dacian name for *Aster Amellus* L.; *i. e.*, in the old Thracian tongue of the natives of Dacia? See *infra*, under Dioscorides.

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* So Strangford in his Vocabulary of Cretan Greek, in Spratt's Travels in Crete, 1865; citing such equivalents as Cretan ἐρωτας for Mod. Gr. δίκταμος, dittany; and Cretan σκολινός, a pig, for Mod. Gr. κοίρος; adding that "dictionaries have hitherto made it a point of honor to suppress or ignore the so-called 'vulgar' Greek."

ROEMISCH NEGELIN (= Roman Pink), a name for a blue Caryophyllon, *Brunfels* 3 : 5 ; the context suggests that he may have meant Aster.

SCARTENKRAUT, in Ger., *Dodoens*, 1554–1616 ; *i. e.*, Sharewort, from same original as A–S scare, the *pubes*.

SCHARTENBLUMEN, *Adam Lonitzer*, 1557, his leading name for Aster Atticus, forming title to his cap. 83.

SCHARTENKRAUT, is the name used for Aster Atticus by the dyers at Speier, *Bock*, 1536, fide J. Bauhin, 2 : 1045, twice repeated ; and again enumerated as a German name, as if used 1650; seems not to be the same as present German Schartenkraut, *sawwort*, named from scharte, a notch ; but to be from the same root with share, as follows ; at least it was so understood in the sixteenth century.

SHAREWOORT, Eng. name given by Gerarde, 1597, intended as equivalent to Schartenkraut and to Inguinaria ; from English share, the groin, Middle Eng. schare, A–S scare.

STACHYITES, *σταχυίτης*, *D.*, name for *Aster Tripolium* L., of doubtful application, formed from *στάχυς* a row, a spike.

STARWORT, *Gerarde*, 1597, and onward ; his spelling being Starrewoort with each of his four figures, Starwoort in the text occasionally.

STELLA, name including Aster Atticus, *Hermolaus Barbarus*, 1492 (because identifying it with Alchemilla, "vulgo stella dicta"), *Matthioli*, 1568, etc.

STELLA ATTICA, *John Lonitzer*, 1543.

STELLA ATTICA MONSPELIENSIUM (= Pallenis, which they considered to be Aster Atticus), *Pena and Lobel*, 1570.

STELLA DI ATHENE, *Matthioli*, 1568.

STELLARIA, as name of Aster Atticus, *Ortus*, 1498, *Euricius Cordus*, 1534, *John Lonitzer*, 1543, *Matthioli*, 1560, etc., *Dodoens*, 1583, *Salmon*, 1682:

Stellaria was used as name of Alchemilla (*Hermolaus Barbarus*, 1492, *Ruellius*, 1516 ; *Fuchs*, 1531, *Matthioli*, etc.), Inula Bubonium, Jacq., *i. c.*, *I. salicina* L., Plantago Coronopus L., *Dodoens*, Carduus Theophrasti of *J. Bauhin*, Myacantha or Calcitrapa of *J. Bauhin*, Perdicium and Rubia, also Leontopodium alpinum.

Stellaria Dalechampii was perhaps a Spergula, or Rubia; see p. 80.

STELLULA (a translation of asterion and asteriscus), *John Lonitzer*, 1543.

STERNBLUME, *Willdenow*, etc., modern book name.

STERNKRAUT, *Gart*, 1485; *Fuchs*, edn. 1551; in Fuchs, edn. 1545, printed Braun Sternkraut, apparently for Blau Sternkraut. Sternkraut, *Ryff*, 1543, *Matthioli*, 1560, *Adam Lonitzer*, 1557, *Lobel*, 1576, *J. Bauhin*, 1650.

Klein Sternkraut (*A. Alpinus*) *Camerarius*, 1586?

Berg Sternkraut weiblein (*Inula montana* L.) *Tabernaemontanus*, 1588; his Berg Sternkraut mannlein (= Brittanica, *J. Bauhin*) being not different, *Linnaeus*.

Sternkraut was also used for Aspergula, *Cornarius*, 1529; for Herb Paris, *Bock*, 1536.

STERRECRUYT, Flemish, *Dodoens*, 1554–1616, *J. Bauhin*, 1650.

TINCTORIUS FLOS I, *Bock's* name, 1536, for purple Aster Atticus.

TRIPOLIUM, *Pliny*, *τριπόλιον D.*, = *Aster Tripolium* L., and of *Dodoens*, etc.

TURBITH, Arabic name for Aster Tripolium, so used by Serapion; by Tournefort used as name of a genus including *Thapsia garganica* L., *θάψια D.*

TURPETHUM, Arabic, name originally of some wholly different root, was substituted for the preceding, and became greatly confused; Leonicenus devoting himself to clearing its application, and Matthioli to exposing errors of Brasavola, Mainardi, Collenucio, Fuchs, etc., regarding it.

UNGUINIALIS, *Gart*, 1485, see Inguinalis; sometimes confused with Unguinaria or Unguinalis—a name for Parietaria, from its use *ad unguen*, whence the old name Whitlow-wort.

VIOLA PURPUREA; Aster Atticus seems to have been by some called *ἴον*, or Purple Violet; and to have been blended in medical repute with Viola odorata in the Viola purpurea of Pliny, of the Secres de Salerno, Arnald de Villanova, Matthioli, etc. See infra, under Dioscorides and Arnald.

VERGIL'S STERNBLUME, *Willdenow*.

WAGSTROW, Ger., *J. Bauhin*, 1650.

WEGENKRAUT, Ger., roadside flower; "is not Megenkraut [o[illegible] name, as printed, for Aster] meant for Wegenkraut?" *Bavaria.*

YNGUINIALIS, form of Inguinalis (q. v.) in *Ortus.*

PLANT-NAMES DERIVED FROM ASTER

ASTERCUM, see Astericum.

ASTERIACE, ἀστεριακή, Celsus, 5, 14: may be the name of plant, *Meyer;* is name of a simple medicine, *Harper's* Lat. Dict — is perhaps the same as Aster in the sense of collyrion or compoun[illegible] medicine, *editors of Celsus.* The circumstances seem to indica[illegible] that the last interpretation is correct; see *infra*, pp. 85, 88–92.

ASTERIAS, ἀστερίας, does not appear in Greek as a plant nam[illegible] but as an animal name, Aristotle's History of Animals so nam[illegible] ing a kind of weasel, γαλεώς, 5, 10, 1, and two birds, a κίρκος, 9, 36 1, and an ἐρωδιός, 9, 14, 23.

In modern Greek it stands as name of the starfish, as in Linnean zoölogy.

In Renaissance botany it appeared as a plant-name as the "Asterias sive Stellaria Dalechampii," perhaps meant for a Rubia; at leat J. Bauhin so used it, 1650.

ASTERICUM, ἀστερικόν, or astercum, "the star-like plant"; name applied to the pellitory, *Parietaria officinalis* L., which was in pure Latin called urceolaris, *Harper's Lat. Dict.* as in Pliny, 22, c 17, beginning "Perdicium sive Parthenium * (nam sideritis alia est) a nostris herba urceolaris vocat, ab aliis astericum, folio similis ocimo, nigrior tantum, nascens in tegulis parietinisque." Pliny then details its medicinal use and its potency for suppurated abcesses (like Aster?) and adds the story of the slave held in high esteem by Pericles, falling from the roof of the temple on the Acropolis where he was at work, who was made whole again "by this plant, the virtues of which had been disclosed to Pericles by Minerva in a dream; the slave of whom the famous bronze statue called Splanchnoptes exists." Plutarch makes two separate stories of this, bringing Minerva to Sylla to point out where the Parthenium or Virgin's-plant grew. It still grows on the Acropolis and in chinks close to the Parthenon: as on walls everywhere else in

* Not the Parthenium usually so termed as of *D.* and of Celsus, *Matricaria Parthenium* L.

Greece, where it is still called *περδικάκι*, or the partridge-plant, as in time of Pliny; and is also known by the name *ἀνεμόκλειτι* (fide Sibthorp), "the key turned by the wind"; but not any longer by its name in Dioscorides of *ἑλζίνη*, "the plant drawn out.'

Robertus Constantinus in his notes on Theophrastus proposed to amend *ἀστεριόκοτ* by *ἀστεριόν*; but no one seems to have adopted the suggestion and I see no reason for it. See *infra*, p. 114. Brunfels (2 : 18) makes Astericum the same with Imperatoria of his day (and of Linnaeus), and not the same with Meu which it had been considered (*Athamante Meum* L.).

ASTERION, *ἀστέριον*, = little star, starlike-leaf, or Aster-like plant. In the first sense, supplied to Aster itself.

In the second, it occurs as a synonym for hemp, *Cannabis sativa* L., *D.*, bk. 3, c. 161, a scholiast there remarking that the reason for the occurrence of the name Asterion for Cannabis is from the division of its somewhat radiate leaves.

In the second sense it also occurs as a synonym for *Heracleum Sphondylium* L., *D.*, bk. 3, c. 90, the *Σφονδύλιον* of the Greeks, with radiately divided leaves. Matthaeus Sylvaticus interpreted this Asterion as = Artemisia, fide Ducange (Glossarium ad scriptores mediae et infimae Graecitatis, Leyden, 1688).

Asterion also occurs as an animal-name, denoting a certain kind of spider, or phalangium, with starlike spots, *Nicander*, Theriaca, 745, where a species of Tetragnatha is meant, according to Walck.

Asterion is said to represent a white-spotted lizard, Pliny, 29, 4.

Asterion also occurs in Myrepsus, 21, 2, in the phrase "asterii n mari invenii," meaning probably the starfish, the Latin *stella*, he *stella marina* of Pena and Lobel.

ASTERIPHON, a form of the Carthaginian Astertiphe, q. v. Chamaemelum), as cited by Ruel, *D.*, edn. 1549.

ASTEROPE, *ἀστεροπή*, star-faced; a name in Egypt of the plant Marrubium, *D.*; perhaps however merely a contraction of its Carthaginian name Atierberzia, q. v., assimilated to Greek form.

ASTRIA, *ἀστρία*, cited in MS., Lexicon in Cod. Reg. Paris, as a synonym for Helxine, *ἑλξίνη* of *D.*, *Ducange*.

ASTRION, *ἄστριον*, Byzantine Greek for "little star," occurs as synonym for *Plantago Coronopus* L., *D.*, bk. 2, c. 158 (interpola-

tion?) Manardus seems to have made both the same as Aster, 1523. Astrion may have been applied to Coronopus from the radiately spreading tufts of leaves; or may have been a partial assimilation of its Carthaginian name *atirsipte*, q. v. (i. e., atir, atar, astir, = herba; assimilated with aster and then used in diminutive).

PUNIC PLANT NAMES ASSIMILATED TO ASTER

A number of Dioscoridean synonyms are from Africa, listed as names used among the Λίφυες or people of the Roman province of Africa, of which Carthage was the chief city. Many of these names begin, in their Greek form, with ἀστερ or ἀτερ, astir or atir,—equivalent, fide Bochart, to *herba*, and not from Gr. *aster*, but Ar. atar, *herba*. Bochart, Huguenot orientalist, 1599–1667, made a study of these names, as quoted by Sprengel (Dioscorides, 25, 532; 26, 466, 559, 589, etc.). Bochart and Sprengel, calling them Punic names, assumed them, because in use at Carthage, to have originated in the Punic speech of the Carthaginians. Comparison with Hebrew roots resulted in the ensuing meanings.

ASTER CHILLOS, or Aster choiloth; ἀστὴρ χιλλός, ἀστὴρ χυειὼθ of MSS. of *D.*, 4, 36; = herba Achillis, *Bochart* fide Sprengel, Dioscorides, 26:589; name for Achillea, including Achillea Millefolium L., called also in Greek χιλιόφυλλον, the thousand-leaf plant; as if the original ascription to Achilles' discovery was an afterthought due to the name χίλιον already in use, from its much-divided leaves.

ASTERENK, a Persian name for Mandragora; also from *astir*?

ASTERTIPHE, ἀστηρτιφή, =herba pomi, propter mali odorem, *Bochart;* name for Anthemis, *D.*, 3, 144, including the chamomile, claimed to mean ground-apple and to be so named from the odor: and for chamomile Apuleius cites Ovalidium as Gallic, interpreted by Bochart as from Gallic oval, Ger. apfel, = apple. Cf. p. 133.

ASTIRCOC, ἀστιρκόκ, *D.*, 4, 94 = herba efficax, Sprengel's Diosc., 25: 593; name for *Potamogeton zosteraefolius* Schmach. *fide* Sprengel; *D.* remarks that "the Afri" or Carthaginians also call it Potamogeton alter, and the Dacians κοαδάμα.

ASTRESMUNIM, ἀστρεσμουνείμ, *D.*, 4, 71; = herba Esmuni, *i. e.*, herba Aesculapii, Sprengel, Diosc., 25: 565; name for Strychnon hortensis, *fide* Sprengel, the Strychnon of *D.*

ATIEIRKON, *ἀτιειρκόν*, *D.*, 2, 152; = herba nervorum, Bochart; *ὀρεχνεύμονος*, *D.*, codex C, emended by Saracenus to *οὐρὰν ἰχνεύμονος*, ichneumonis caudam; occurs as name of the plant among the "Prophets" or Egyptian magicians; = *Plantago lanceolata* L., say some, or *Plantago maritimum* L., fide Sprengel.

ATIERBERZIA, *ἀτιερβέρζια*, *D.*, 3, 409; = herba benedicta, Sprengel, Diosc., 25: 455, deeming it so named "because most adverse to sterility; cf. Hippocrates de Sterilit, 19." = *Ἡράσιον* of the Greeks, *ἀστερόπη* of the Egyptians, *D.*; = *Marrubium vulgare* L., and other species, *Sprengel.*

ATIRSIPTE, *ἀτιρσίπτη* *D.*, 2, 147; = herba *picis*, Bochart; name of *Plantago Coronopus* L. which the Greeks called *κορωνόπους*, and *ἄστριον*; an Arabic name for it, *atariabelni* (Sprengel, *D.*, 26, 466) is apparently formed from atar = herba. Bochart explained *atirsipte* (itself but a doubtful approximation to the original word intended) as *herba picis*, Woodpecker's plant, in the sense of *herba hyemis*, *herba perennans;* Sprengel, claiming that Bochart was here combining a Hebrew and a Greek root, objects with decorous propriety to the "connubium ebraicae et graecae." See Astrion, p. 81;—which, like Coronopus, may have been a name applied to it from its radiate tufts of leaves.

ATIRTOPURIS, *ἀτιρτόπουρις*, *D.*, 2, 217; = herba unguium, because the leaves are like claws, *Sprengel*, *D.*, 26: 489; name of the Greek Telephium, *Τηλέφιον*; = *Sedum Telephium* L.

ASTER AS NAME OF "SAMIAN EARTH"

ASTER, *ἀστήρ*, Theophrastus, or Aster leucos, *ἀστὴρ λευκός*, Aretaeus, or Aster Samius, *ἀστὴρ Σαμίος*, in Pliny, Dioscorides the Younger, or *D.*, bk. v., Galen, Euporista, Aëtios, etc. A white earth of peculiar texture used as an astringent, obtained from quarries at Samos, prepared as quoted from Pliny *infra*, sold in small tablets stamped with a seal, and valued for properties which repeat those of Aster Atticus as follows

1. For sores and discharges of the eyes, *Pliny*, *D.* v.
2. For incipient buboes, *Galen.*
3. For any purpose where a moderate refrigerant is desired. *Galen*, who calls Aster Atticus a moderate refrigerant.
4. For ulcers, in water and wine, etc., *Pliny*, *D.* v., *Galen.*

5. For poisonous bites, of serpents and of other animals, *Pliny*, *D.* v., *Euporista.*

6. For inflammations, especially of the groin, and testes, and those of the mammae, *Pliny*, *Galen.*

7. In labor (applied to stop a flow of blood), *D.* v., *Aretaeus.*

8. To drink in water and wine as a stomachic, *D.* v.

9. Tied on as an amulet, worn by women as a φυλακτήριον (to promote conception and parturition), *D.* v.

All of these resemblances in use lead to the conclusion that Aster Samius received its name because of similarity in properties to Aster Atticus ; rather than to the conclusion that Aster Samius was so called simply because a star remedy or a first-quality remedy, as Riley implies in his Pliny, 6 : 298, remarking of Aster Samius that it is "'Star' earth apparently." Another possible reason for the name Aster Samius might be found in its stamped packets if they bore the stamp of a star ; but there is nothing to indicate that they did, or that if they did, the use of that stamp may not have been due to the name Aster already in vogue for the remedy. There were many earths used medicinally and to some extent interchangeably ; but it is worthy of note that the particular earth among them all which had strongest resemblance to Aster Atticus in properties was the earth to which the name Aster was given, as Galen takes pains to make very plain.

All of these earths differed from Aster Atticus in having a highly astringent property. Most of them resembled it in being as Galen puts it, "excellent moderate remedies without great heat or cold . . . and of all these the best is Aster."

It appears, on the whole, probable, 1st, that the flowers and whole plant of Aster Atticus, receiving name from its star formed blossoms, were in use by name Aster for buboes and ulcers, as an eye-salve and stomachic and anti-toxic, and also as an amulet, for centuries before Cratevas, who so mentions it, circa 100 B.C. ; 2d, that the name Aster became applied as a consequence (as early as Theophrastus) to certain earths used for many similar properties, notably as an amulet (the "stone" or harder masses found in them) and for inguinal and ophthalmic inflammations. Among the many earths of similar appearance and use, it was the especial name of that white earth exported from Samos ; though those authors

who considered many or all of these earths as equivalents were likely to use the term Aster for the others also ; as Aretaeus may have intended. By time of Pliny it became fixed as name of the Samian only. 3d, after use of the word Aster for some time as name of the stamped Samian tablet used as an application to ulcers, etc., the word came to be used by physicians as name of compound preparations of their own with similar purpose, the Aster-medicaments which have great vogue in the writings and practice of Galen and Aëtios, and of which perhaps the first indication is in Celsus' mention of his remedy *asteriace* (see p. 80). The progression of use of terms in this sense seems to have been : *Asteriace*, the aster-like medicament, *i. e.*, the poultice compounded to do the work of Aster Samius ; *Celsus*, about 30 B.C. By the time of Nero, Andromachus and Asclepiades, physicians of his court, seem to have used *Aster* out-and-out and unmodified, in this sense of a compound medicament, with or without the actual presence of Aster Samius in it. By the time of Galen, a century later, various such Aster-medicaments were becoming distinguished from each other by specific names. By the time of Aëtios, 540 A.D., the reaction upon Aster Samius of the use of Aster as a medicament-name had caused Samos to be frequently forgotten, and the Aster Samius was called perhaps half of the time Terra Asteris, *i. e.*, the earth that is used as a base for the medicament called Aster. 4th, after use of the term Aster for medicaments of properties similar to Aster Atticus, as indicated in 3, the name Aster probably became applied to miscellaneous medicaments by ambitious physicians in the general sense of Star-remedy or First-class remedy, through the reflex influence of Aster in the primary meaning of "star in the sky."

Citation of the principal descriptions of Aster Samius follows :

Aster, in Theophrastus' *Lapides*, 64, circa 320 B. C., explained as a "Samian clay used as sealing-wax" *i. e.*, stamped, being doubtless the white Terra Samia or Aster Samius exported in small stamped* tablets.

* "Nature having, according to the doctrine of signatures, marked certain plants with their purposes, and labelled them, ancient physicians began making medicines with the seals appropriate, and carried signets often worn on the thumb, on which were engraved their own names or the names of the nostrums they vended, as on one, *aromaticum*, another, *melinum*, a collyrion prepared with glue from the island of

Aster leucas, ἀστὴρ λευκός, Aretaeus Cappadocis, De curatione, 98, 19, 20, writing about 55 A.D. (but ignored for centuries, and named by Dioscorides, Aëtios and Paulus Aegineta only among the ancients), who here mentions ἀστὴρ λευκὸς as "a white earth, also called Samia; or Eretria or Sinopica or Lemnia"; and mentions it bk. 2, as an astringent in his chapter 2 on "Curatio sanguinis refectionis." Aretaeus' phrase, 98, 19, is γῇ ἀρίστῃ Σαμίᾳ καὶ Ἐρετριάς καὶ ἀστὴρ κάρτα λευκός.

From Pliny; "Of Samian earth there are two varieties; one known as Collyrium; the other by the name of Aster. To be in perfection, the first kind should be fresh, remarkably smooth and glutinous to the tongue; the second being of a more solid consistency, and white. They are both prepared for use by being calcined and then rinsed in water, some persons giving the preference to the first. They are both of them useful for discharges of blood from the mouth, and are employed as an ingredient in plasters of a desiccative nature. They are also used in the preparation of ophthalmic compositions. All these earths are well washed in water and then dried in the sun, after which they are again triturated in water and left to settle; this done they are divided into tablets."—*Pliny*, 35, 53–55.

"Earth of Lemnos, the best is found in quarries of Lemnos and Cappadocia; it approaches very nearly [as a pigment] to minium [red lead] and was as highly esteemed among the ancients as the island that produces it; it was never sold except in sealed packages, a circumstance to which we are indebted for its additional name of sphragis [a seal]. It is with this that they give the undercoating to minium, and in the adulteration of minium it is also extensively employed." *Pliny*, 35, 14, *adding its extensive

Melos. The earth of Lemnos was sealed with the figure of Diana, and to this day the bolar argils brought from Greece bear various seals and characters; hence the *bolus Armeniae* and the *bolus rubei* are called *terra sigillata*." Millengen, Curiosities of Medical Experience, 2: 139. London, 1837.

The term *terra sigillata* occurs 1779 in a London recipe for a preparation to be used as a mouth-wash, beginning "Take Mace, Cinnamon, Cloves, Pellitory of Spain, and Terra Sigillata or Sealed Earth, of each half an ounce," in "Spirit of Wine," with "Spirit of Scurvy Grass and Water." The Toilet of Flora, 91. Lon. 1779.

*There were many other "earths" also, used medicinally and in painters' mixtures, etc., as described by Pliny, bk. 35. Even Attica produced its peculiar earth, "Atticus sil" or ochre, of violet color, *Ruel*, 634.

medical use "for the eyes and bleeding, and against poisons and stings."

From Dioscorides (*the younger*, 100 A. D.?), 5, 172–3, "Of Samian earth (Σαμίας γῆς) the white is much preferred, smooth and adhering if touched to the tongue like glue, juicy, soft and friable; which is the kind that some call collyrium. For there are two kinds of this, namely that which is now mentioned, and that which is called Aster, (καλούμενος Ἀστήρ), lumpy or full of clods, and dense in feeling like a whetstone (πυκνὸς ὡς ἀκόνη). It is used like the Eretrian earth and has similar strength; it stops a flow of blood; and bleeding from the vulva in labor; if given with the flower of the wild pomegranate (σὺν βαλαυστείῳ). It also allays inflammations of the testes and of the mammae if rubbed on with rosewater; and it moderates sweats; and finally it is a remedy against poisonous bites and against deadly drugs, if taken to drink in wine.

"The Samian stone (*Samius lapis in Samia terra*) is found in Samian earth, which goldsmiths use for polishing and brightening gold. It exists in two kinds, white and gray. It has an astringent and refrigerant power, on account of which it is used to drink, for stomach troubles; it is also efficacious as an aid to foster the organs of the body and to protect them from injury; it is a remedy, applied with milk, for discharges from the eyes and for ulcers. It is believed also when tied on by women as an amulet (φυλακτήριον) to promote parturition and conception."

From the Euporista, ascribed to Dioscorides; among the 72 plants to be taken in drink with wine, against viper-bites, occurs

γῆς σαμίας τοῦ ἀστέρος ≺ β'.

or, as Saracenus renders it, asteris samii drachmea ii—*i. e.*, Take of Samian earth of the kind called Aster, two drachms.

This is the only ancient reference of which I am sure in which both Aster Atticus and the Aster Samius occur in the same context, their place in the long list being but five items apart, that part of this list of snake remedies reading, in translation,

Asclepiadis radix, flos Asteris Attici, Atractylidis flores et folia, Piper, Pistachia, Balsam, Gentianae radix, Asteris Samii drachmae ii, Daucus, Quercus, Iris, Helenium decoctum, etc., etc.

*From Galen,** "*De terra Samia.* We use moreover that other kind of Samian earth more, which they entitle *Samium astera*, for stopping hemorrhage, just as with the earth under the Lemnian seal (*Lemnio sigillo*). Aster Samius is used for ulcers, with the juice of arnoglossum (= *Plantago major* L., sometimes called Aster, says Apuleius, perhaps from this use for ulcers like Aster Atticus and Aster Samius) in uster and wine and vinegar. But the Lemnian earth seems to me not a little more efficacious than the Samian [for ulcers]. The Samian is fit and efficacious for incipient buboes (bubonas incipientes) and where it is desired to use a moderate refrigerant (refrigerare mediocriter). For the Samian Aster is tenacious and viscous,† and the Lemnian seal (*Lemnia sphragis*) has some little degree of the same character. Women also use as abstergents, the Selinusian earth and the Chian; they are the most excellent remedies for the fiery burn of an ulcer. They are excellent moderate remedies without great heat or cold; which is true of Selinusian, Chian and Samian earths. It is said, moreover, that the species of this which they call Aster excels the remaining earths, because it has a certain viscous and tenacious quality, and either the Chian or the Selinusian earth is inferior to the Samian in treating tumors of the breast, or the early development of buboes on the testes or the groin."‡

ASTER MEDICAMENTS

Aster as name of a medicament, a collyrion, poultice or compound medicine, seems to have come into use as name of a compound to replace the simple Aster Samius, and seems to have become confirmed in use by its connoting a star. Galen and Aëtios are chief existing authorities for this use of the word Aster.

Galen made use, for ulcers, etc., of a composition which he called Aniketos Aster, *ἀνίκητος ἀστήρ*, or in Latin *Aster inexsuperabilis*. Galen's statement of its use is as follows:

"*Aster inexsuperalibis*, ad doloris vexatione, pustulas, staphylomata, ulcera sordida, et serpentia. Facit ad inveteratos affectus et cicatrices exterit."

* Edn. Kuhn: 12: 178+, *περὶ Σαυίας γῆς*.

† "Tenax enim et viscosus est Samius Aster."

‡ "Ad phlegmonas in mamillas, testibus atque inguinibus incipientes."

The components which he used included terra Samia, myrrh, opium and tragacanth; and mineral ingredients, as "Cadmia usta et lota, stibium, plumbum, spodium" etc. Galen, 12, 761.

Aster pharmacon.—Another Aster medicament for ulcers used by Galen and before by Asclepiades, is the "Aster pharmacon" of Galen, 13 : 735; where Galen, writing in c. 13 "Concerning emplastra which Asclepiades * prescribed for ulcers," describes as best of these one called *Pharmacion* of mineral substance, and next, his *Asteros pharmacon*, also mainly of mineral composition, presumably with a basis of the Aster Samius; it was compounded with aerugio, chalcitis, oil, etc.; its description beginning *Ἀστέρος φάρμακον ... ἔστι δὲ διαφετικὴ ἀγαθή*, or Asteris medicamentum ad idem accommodatum, ... etiam discutit.

Aster stomachicos, another of Galen's aster medicaments, is thus described: "Aster stomachicos, facit ad eos quibus cibus in ventre accessit ad tormina, destillationes, dolorem capitis, spuentes sanguinem, tabefacentes, affectiones circa vesicam et uterum." Give in pastilles. Contains mandragora, myrrh, balaustion, crocus, anise, opium, storax, seeds of apium and hyoscyamus, Hyssopus Creticus, and castorium. Galen, 13 : 164.

Aster anodynes.—Galen also describes a long series of anodynes, to some of which he gave the name Aster; in his work on the composition of drugs and medicines, his *περὶ συνθέσεως φαρμάκων*; its fifth chapter, concerning anodynes beginning "This class of medicaments for relieving pain, the earlier physicians made and called by the name Anodynes, *ἀνώδυνος*." Among these standard anodynes of which Galen gives name and composition were, (1) that prescribed by the physician Andromachus,* with opium, hyoscyamus, etc.; (2) that of Marcellinus, "add to the preceding dried roses, crocus, anise," etc.; (3) the Seed Anodyne, "anodynon ex seminibus," with seeds of apium, ammi, anise, fennel, opium, cassia nigra, etc.; (4) that of Achillea, including most of the pre-

* Among numerous physicians of this name, the one Galen refers to was probably the one most celebrated of all, Asclepiades of Bithynia, who acquired a great reputation as a successful physician at Rome, about 50 A. D. Gumpert published the few existing fragments of his writings in 1794.

* Physician to Nero; see *infra*, under Dioscorides.

ceding ingredients and nard, piper, etc. (5) Xenocrates' * anodyne with gentian and with some of the preceding ingredients; (6) the anodyne called sphragis, the signet-stamped anodyne with mandragora, opium, crocus, etc.

Galen's Aster anodyne.—Seventh of this series of anodynes is Galen's own Aster anodyne, of which he says: "Another anodyne called Aster,† banishing pain, which I use for any flux and all internal troubles and indigestions, and for the bladder, for dysentery, for suffocationes uteri, for fluxum muliebrem, stomachi fluxionem, sanguinem rejicientes," etc. The composition of this Aster anodyne was nearly as complex as its efficacy ;—

"Croci obol 3, seminis hyoscyami $>$ 6, seminis apii $>$ 6, anisi $>$ 4, styracis $>$ 4, seminis dauci $>$ 4, castorii $>$ 2, opii $>$3, myrrh $>$ 2, quidem etiam mandragorae succi $>$ 4, ut vero Xenocrates,* etiam piperis albi $>$ 6, cum aqua fac pastillos triobolares. Dato ex aqua." Galen, 13: 91.

Many other anodynes follow, including that of Lycomedes, with dried roses and myrrh ; that of Rufus ‡ ; the anodyne Resiccatoria, with rose-leaves and flowers of *Juncus odoratus ;* the anodyne Mirabilis, *ἀνώδυνος θαυμαστής*, made with seseli, tussilago, chamaepitys, and sylvestris, rheum Ponticum, with poppy-seeds, etc.; and finally, omitting many of less note, his

"*Aster unsurpassed*, a drug accurately compounded as an Anodyne, Sleep-producer, All-usefull.

"*Ἀστὴρ ἀνίκητος, φάρμακον ἐπιτετευγμένον ἀνώδυνον, ὑπνοποιὸν, πολύχρηστον.*" "Aster alter inexsuperabilis, medicamentem accommodatum sedans dolorem, inducens somnum, multi usus ad varios affectus. Nam et stomachi morbos mirabiliter sanat a ructibus acidis, aegris concoctibus, torminibus volvulis, inflationibus. Facit ad capitis dolorem potatum et foris illitum fronti aceto dilutum."

Used also for the eyes, with the juice of Perdicium (Parietaria); for toothache with a fig or galbanum; for inflamed tonsils, for

* Xenocrates, a physician of Cilicia of about 150 A. D ; of his writings some short fragments survive, and a short treatise on food-fishes, etc., "De Alimento ex Aquatilibus," edited by Pranz, 1774, Leipzig, and at other times since ; deemed "an interesting record of the state of natural history at the time."

† *Ἄλλη, ὁ ἀστὴρ ἀνώδυνος, ἡ χρῶμαι*, etc.

‡ Rufus Ephesius, celebrated Greek physician of about 100 A.D., born at Ephesus, author of various works still extant.

wool before the eyes, for flux of blood in myrtle wine; for old or recent cough, diluted in wine; for phthisis with Marrubium; for dysentery, etc., with "Sanguinaria"; for reptile bites with Rue; for rheumatism, with Gentian; etc., etc.

Make it with myrrh, styrax, Nardus Indica, Cassia fistula, cortex Mandragora, and with terra Lemnia. Or add Seseli Massiliensis, seeds of Daucus, etc.—*Galen*, 13: 164–6.

Aster-remedies of Aëtios.—Another long series of compounds entitled Aster or using Aster Samius as a base were used and described by Aëtios, c. 540 A. D., the Greek physician probably of Justinian's court; who called most of these preparations by the term collyrion, *κολλύριον*; as his Magni collyrion composed with a base of Aster Samius; and as the following to which he gave the name Aster:

Asclepiades' Aster.—"Asclepiadae, aster inexsuperabilis, dolorum eximens." This is a modified form of Galen's ulcer-curing Aster inexsuperabilis. Aëtios states its purpose in Galen's words and prescribes nearly the same ingredients, adding "gummi, 6 drachmae, cineris pompholygis lotae, 8 drachmae," and omitting Galen's cerussa, amylum, spodium, plumbum, and his terra samia, omitted here, but forming, under the name Terra Asteris, a base of the most of his numerous collyrions; Aëtios adds, Excipe aqua, take in water, most time honored of medical formularies.

Aster Magni.—Aliud collyrion, Aster Magni, quod preparari solet . . . ; it contains the "terrae quae aster appellat."

"*Asclepiadae Aster incomparabilis*" is still another similar collyrion of Aëtios.

Aëtios' Terra-Asteris collyrions.—Numerous compounds recorded by Aëtios include Aster Samius, his Terra Asteris, as a base, and are chiefly directed against ulcers. Each one he calls a collyrion, *κολλύριον*, a word evidently cognate with *κόλλα*, glue, and used by Hippocrates for a poultice, and in later writers interpreted as an eye-salve, as a pessary, etc. Aëtios and others use it as a compound medicament of viscous consistency, to be applied as a poultice, salve or plaster, or to be taken internally, in food or drink.

Aëtios usually gives each collyrion a distinctive name, from a former physician or from an ingredient. Among those with Aster Samius as a base are three from Oribasius, two from the medical

writer Demosthenes, and one each from the physicians Asclepiades, Philagrius, Philumenos, Cleon, and Sandyx, men of whom little more is now known than their names. Of these preparations one is called Uranium, two because containing spodium are called Spodiaceum, three are called libyanum or lybianum; suggestive of the Arabic name of Aster Atticus, Alibium, but here perhaps originally derived from the region Libya, though seemingly now used substantively in the sense of an aster-medicament or collyrion.

The following is a list of some of these collyrions made with Aster Samius.

Collyrium libyanum Asclepiadae, for a sty on the eye, etc.

Collyrium inexsuperabile of Oribasius, the *tenerum libyanum* of Philumenos, for ulcers, styes, etc., composition nearly the same as Galen's "Aster inexsuperabilis" used for ulcers: made of cadmium, cerussa, pompholygos, stibium, amylum plumbum, ustum, terra Samia, tragacanth, gumma, myrrh, opium. Take in water. Used also with milk or with an egg.

Aliud lybianum Oribasii, Ad principia, et ulcerationes; the ingredients are the same as in the preceding form.

Aliud collyrium Uranium velut Oribasius habet. For ulcers, pustules, etc. Use terra samia, pompholygos, gum trientem, etc.

Collyrium spodiaceum Demosthenis. For inflammations. Make with terra Samia and the dry leaves of olive, etc.

Collyrium Spodiaceum, for ulcers. Make with terra Asteris.

Collyrium Tephnon; use terra Asteris.

Collyrium Philagrii * or collyrium Sandycis; use terra Asteris.

Collyrium Thure, for ulcers; use terra Asteris.

Collyrium Cleonis velut Demosthenes habet, for ulcers. First of this long series of collyrions not to contain "terra Asteris."

* Philagrius, known only by a few fragments, a Greek writer of perhaps 250 A. D.

HISTORY OF PRE-CLUSIAN BOTANY IN ITS RELATIONS TO ASTER

II

PLANT WRITERS BEFORE CLUSIUS.

APPROXIMATELY 400 B. C.–1600 A. D.;

WITH ESPECIAL REFERENCE TO ASTER AND TO PLANTS SOMETIMES CONFUSED WITH ASTER.

Tabular View

of

PLANT-WRITERS BEFORE 1600,

Showing estimated Date of Authorship; also Subject, Language and Nationality

Most writers before Brunfels (1530), and, in diminishing degree, before Clusius (1576 and in completer form 1601), treat plants chiefly from the standpoint of reputed medical powers. That will be understood of the authors and works in this list, with exception of those specifically otherwise named, especially those treating agriculture or plant-physiology. Onward till Clusius and Cesalpino (1583), this insistence upon remedial agencies remained prominent, but with the difference of gradually shifting proportions, the proportion of descriptive matter being greatly increased in works such as those of Bock, Lobel and Clusius.

Works of which the authors are wholly unknown are entered in this list in italics. A few abbreviations used include, with slight variation for context, *au.* author, *tr.* translated, *b.* born, *d.* died, *bef.* before, *c.* or •, about.

A few authors of special botanical importance are capitalized.

Approximate or estimated dates are the only possible dates in most cases before the invention of printing. Such approximation is indicated by a prefixed medial dot, •, (as • 1000, = about 1000 A. D.) instead of using *circa*. Dates from 1475 (the *Buch der Natur*) onward, are dates of first printing, not of authorship, unless otherwise stated; and most of these are exact.

The language in which an author wrote is indicated by the heading over the column in which his name begins.

His nationality, if it is not expressed by the language, as in case of many writers in Latin after the development of English, German, etc., is indicated by heading or by abbreviation following his name. Most of the earlier German writers belong to the Rhine provinces, and are here designated under the term Rhenish. In the column used for those of the Salernitan school in Italy, a few writers are also classed who worked over Salernitan material, viz., Bertharius, Otho Cremonensis, and Arnald de Villanova. Other Italians are classed under a separate column, Italian.

No part of this list is or could be exhaustive; but particular fullness has been given to the mediaeval portion, especially the early English; because so commonly ignored.

Estimated Date.	Greek.	Latin.
B. C.		
·400	Hippocrates, "Father of Medicine."	
·340	Aristotle—incidental references in his History of Animals, etc.	
·320	THEOPHRASTUS; plant-physiology, etc., "Father of Botany."	
·260	Diocles, of Carystus, on kitchen-vegetables and medicinal herbs.	
·230	Andreas of Carystus, au. of the lost *Nartheca*, etc.	
·160	Nicander, of Colophon, Ionia; poet, *Georgics*, *Theriaca*, etc.	
·160		Cato, Rome, *de Agricultura*.
·100	Cratevas, in Pontus, au. of a lost *Rhizotomica*.	
·60		Varro, Rome, *de Agricultura*.
·50	Dioscorides Phaca, at Alexandria; 24 books *de medica arte;* lost.	
·40	Dionysius Itykaos, tr. of Mago, the Carthaginian "Father of Agricultur	
37–30		Vergil, *Georgics;* at Mantua and Naples.
·30		Aemilius Macer Veronensis, poet, *Theriaca*, etc.
·10	Nicolaus Damascenus, plant physiology, etc.	
A. D.		
·10		Hyginus, at Rome, *de Agricultura;* lost.
·20		Columella, at Cadiz, *Praecepta de Agricultura*.
·35		Scribonius Largus, Designatianus, Rome.
·40		Celsus, *de medicina libri octo;* Rome.
·51		Columella, near Rome, 10 books *de Agricultura*.
·55	Aretaeus, of Cappadocia; *De...morborum*, 8 books.	
·60	Andromachus of Crete; *Theriaca*.	
·65	DIOSCORIDES ANAZARBEUS, of Cilicia; 5 books *de materia medica*.	
77		PLINY "the Naturalist"; Rome.
·100	Dioscorides the Younger, Alexandrinus, "the Glossograph"; *on Hip crates*, etc.	
·140	Marcellus Sidetes, of Pamphylia; poet, *Iatrica*, 42 books; lost.	
·175	Pausanias, incidental references in treating topography of Greece.	
·180	GALEN, of Pergamus; *Opera*, 83 genuine books; and *Commentaries*.	
·210		Sammonicus, d. 212; Rome, poet, *Liber medicinalis*
·240		Gargilius Martialis, *de Agricultura;* Rome.
·250		Apicius Coelius (*cook-book*). Carthage?
·300	*Euporista* (if not the work of Dioscorides Anazarbeus).	
·362	ORIBASIUS, of Pergamus; *Collectanea*, in 70 books.	
·370	Harpocration's redaction of Kyranis *de herbis*.	
·380		Theodorus Priscianus, Rome? 7 books *de medicina*.
·400	*Anonymi Carmen*.	
·400		Apuleius Platonicus, bef. 439; Carthage; *De herbar*
·400		Marcellus Empiricus; Bordeaux? *De medicamentis*.
·440		Palladius Rutilius, *de Agricultura*.
·540	Aëtios Amydenos, of Cappadocia; 16 books, *Iatrica*.	
·600		Plinius Valerianus, Rome? 5 books *de re medica*.
·600		Isidorus Hispalensis; *Origines;* Visigoth, of Seville.
·620	Stephanos Athenaos, physician; and Stephanos Alexandreus, alchemis	
·630	Paulus Aegineta, Periodeutes; of Aegina; *Opera*, in 7 books.	
·700	Kyranos' redaction of Kyranis, in four books.	
·750	Joannes filius Serapionis; was tr. into Syriac .790; of Damascus.	

Estimated Date.	Arabic.	Greek.	Latin.	Salernitan in Latin.	Rhenish in Latin.	English in Latin.
803					Rhabanus, *De universo.*	
·805					*Capitulary* of Charlemagne.	
812					*Breviary* of Charlemagne.	
842–3					Walafrid Strabus, poet.	
·850			MACER FLORIDUS (a Calabrian Greek?).			
·850	Stephanos Basilides, a Greek, tr. of Diosc. into Ar., bef. 861.					
·850	ISAAC, Ben Honain, reviser of Diosc., bef. 861.					
857–8	Mesue the elder; on drugs.					
·860	Qosthus or Constantine; a Greek; in Arabic; *de Agricultura.*					
·860			Bertharius, d. 884 (of Monte Cassino).			
·890		Photius, *Myriobiblion.*				*Liber medicinalis* (in A–S).
·900	RHAZES or Arrazi, d. 932, au. of *Continens.*					
912–9		Cassianus Bassus, edr., *Geoponica.*				
·950						Alfred Cridiensis, Devon.
·980	HALY or Ibn Alabbasz; bef. 983; au. of *Liber totius medicinae.*					
982	Ibn Dscholdschol, tr. Diosc.					
·990	Ibn Golgol; au. on trees, plants, and materia medica.					
·1000	Ibn Walid; tr. Diosc.					
·1000	MESUE the younger, au. of *De Simplicibus.*					
·1020	AVICENNA or Ibn Sina; d. 1037; au. of *Canons.*					
·1020			GARIOPONTUS, *De Dynamidiis*, etc.			
·1030			The Seven Masters, *Antrorarium.*			
·1040			Giovanni Plateario I, *Practica.*			
·1060			Copho the elder.			
·1070			CONSTANTINUS AFRICANUS, *De gradibus.*			
·1075		Simeon Seth, *Syntagma.*				
·1085			Copho the younger, *Anatome Porci.*			
·1090			Trotula, *Curandum...muliebrium.*			
·1090			*Butanicus*, (used by Simon Januensis).			
·1090			*Liber de simplici medicina* (of Simon Januensis)			
·1100						Adelard Anglicus.
·1100			*Herbarius*, lost, used by Vincent de Beauvais.			
·1100		Stephanos Magnetes, *Alphabetum empiricum*; etc.				
·1101			*Regimen sanitatis Salerni*; John of Milan.			
·1110			Nicolaus Praepositus, *Antidotarium.*			
·1130			MATTEO PLATEARIO II., au. of CIRCA INSTANS.			
.1140						Henry of Huntingdon.
·1150					Hildegardis de Pinguia (Bingen).	
·1158	Ibn Alawwâm or Ibn Al Avam, au. *Agricultura.*					
·1160	AVERROES or Ibn Roschid, au. *de Simplicibus.*					
·1160			Giovanni Plateario III.			
·1168	Moses Maimonides, a Spanish Jew; Arabic *Commentary on Mishnah.*					
1180			Aegidius Corboliensis.			
·1180						Galfridus de Vino salvo or Geoffrey de Vinsauf; (on agriculture).
·1190			*Ferrarese recension of Circa instans.*			
·1190			*Domian recension of Circa instans.*			
1200			Otho Cremonensis.			
·1210			*Alphita.*			Gilbertus Anglicus.
·1230	Ibn Baithar, d. 1248, au. of *Elenchus.*					

Est. Date.	Miscellan. Languages. Arabic. Greek.	Latin of misc. nationality.	Salernitan, in Latin.	Other Italians, in Latin.	In English.	English writers in Latin.
·1240	Harpestreng, Danish; d. 1244; *Lægebog*, an enlargement of Macer Flori					
·1256			*Sinonimia Estense.*		Bartholomaeus Anglicu	
·1256			Thomas de Cantiprato (Flem.), encyclopaedist.			
·1260			Vincent de Beauvais (Fr.), d. 1264, encyclopaedist.			
·1265			ALBERTUS MAGNUS (Suabian) plant-physiology, etc.			
·1265					Roger Bacon, *Opus M*	
·1270	Nic. Myrepsos.		Pietro Spano (Sp.).		Henry & Gilbert de Ar	
·1280			Raimundus Lullus (of Palma), tr. of Kirani Kiranides.			
·1290				Petrus de Crescentiis, *de Agricultura.*		
·1292	Actuarius.			SIMON JANUENSIS, *Clavis sanationis.*		
1307					Bernard Gordon.	
·1310			Arnald de Villanova.		John Gaddesden.	
1311	Ibn Alkotbi or Malajesa, Arabic, au. of *Epitome.*					
·1313				MATTEO SILVATICO or Pandectarius, *Pandects.*		
·1330				Niccolo da Reggio, & Bartolomeo Mino da Si		
1349	Cunrat de Megenberg, Rhenish au. of *Buch der Natur*, in Ger., printed					
·1350		Aggregator practicus.			John Ardern.	
1355			Jacobus de Dondi or Aggregator Paduanus.			
·1373					Jn. Lelamar, tr. Macer Florid	
·1379					Henry Daniel & De Her	
1398					Berkeleyan Barthol. Anglicu	
·1400		*Ortus Sanitatis.*			Jn. Bray & Nic. Bollar.	
·1400				Manfredus de Monte Imperiali.		
1418				Rinius' Dioscorides.		
1421					John Mirfield, synonyn	
1430				Antonius Guainerius; *Antidotarium*, 1		
1438					*Ashmolean Herbals* of '38, '43,	
·1450				Jacobus de Manliis, synonyms.		
1451			Theodorus Gaza, a Greek, Latin tr. of Theophrastus.			
1458	Le Petit Pelous, au. of *Secres de Salerno*, Fr. tr. of *Circa instans.*					
·1476	Ortolfi van Bayrlandt or Megtenberger; Ger., *Artzneibuch*, printed ·147					
1478				Petrus Paduanensis, tr. of Dioscorides.		
·1480	*Arbolayre*, Fr. from *Secres.*			Hermolaus Barbarus, tr. Diosc.		
1481			*Pr. mptuarium Medici.*		*Physical Plants* (MS).	
1481				Antonius Gazius, of Padua, *Florida Cor*		
1485	Johann von Cuba; in Ger.; *Gart der Gesundh it*, tr. of *Ortus.*					
·1490	*Le Grant Herbier*, Fr., from *L'Arbolayre.*				Horman, *Synonyma.*	
1490			Guido de Cauliaco (Fr.) *An idotarium*, Venice, 1490, e			
1492				Leonicenus, critic of Pliny.		
1493		*Liber Aggregationis.*			Calcoensis, tr. Palladius in Sc	
1495					Wynkyn de Worde's Bar. Ang	
1497	Tollat de Vorchenberg, in Ger., *der Artzney*, Vienna, 1497.					
1500	Hieronymus Brunsvicensis, Ger., *Distillerung Buck.*					
·1505	Hieronymus Brunsvicensis' *Apodixis Germanica*, in Ger., a brief flora.					
1510				Collinutius, defender of Pliny.		
1511				Gerardus Nocito, Sicilian; *Lucidariu*		
1513	Herrera, Sp. *Obra de agricultura*,					

Date.	Rhenish in Latin.	Misc. Latin.	Italian in Latin.	Netherlands in Latin.	English writers in English.	Misc. Languages.
1516					Treveris (printer), *The Grete Herball*, tr. of Grant Herbier.	
1516		Ruel, Fr.; Lat. tr. of Dioscorides.				
1518			Marcellus Vergilius, of Florence; Lat. tr. Diosc.			
1518			Vigonius, Joannes de Vigo, Genuensis; *Chirurgica*.			
1519			Manardi, critic of Diosc.			
1520			Leonardus Legius, *Galeni Flores*.			
1525			Ghini, begins delivering his lectures still in MS.			
1526					Banckes, *Herbal*, "Here begynnyth a newe Mater ye whiche sheweth ...ye Vertues & Properties of Herbes"...Lon. "by me, Rich. de Banckes, 1526."	
1526						Oviedo, Sp., *las Indias*.
1527	Euricius Cordus.					
1527					Andrewe's *The Grete Herbal*.	
1527					*Distyllacyon of all herbes*, (tr.).	
1528			Giorgio Valla, *de Simplicium*.			
1529			Anguillara, begins? sojourn in Crete, Zante and Greece.			
1529		Janus Cornarius, tr. Diosc.				
1529	Ct. von Neuenar.					
1530			Baptista Fiera, Mantuan; *de virtutibus herbarum*.			
1530			Baptista Pius.			
1530	BRUNFELS; *Herbarum*.					
1530					Rob. Redman's *Boke of the Properties of Herbes*, Lon.	
1531	Fuchs (Suabian) *Annotationes*, in Brunfels' *De vera*.					
1531	Bock, or Tragus, *Dissertationes*, in Brunfels' *De vera*.					
1531	Joannes Lonicerus or Lonitzer.					
1532				Symphorianus Campegius; critic of Arabs.		
1533			Joannes Franciscus Rota; on Grk. medicaments.			
1533	Eucharius Rhodion's *Gart der Gesundheit* in Ger.					
1533				Cornelius Petrus Leydensis.		
1534		Benedictus Textor Segusinus, notes on Diosc. (Paris, 1534).				
1536		Robertus Stephanus, *De Latinis et Graecis nominibus...herb.*				
1536					Lynacro's "*Macer's Herbal*...into Englysshe," printed by Robt. Wyer.	
1536					Wyer's *Herbal*; "Hereafter followeth the knowledge, properties and the vertues of herbes, Lon. by Robert Wyer"; date and author? Pritzel, 11565.	
1536					Ric. Kele's *Propertyes of Herbes*.	
1536			Antonius Musa Brasavola, *Examen..simplicium*.			
1536		Amatus Lusitanus.				
1537						Lovicz, in Polish, med.
1537	Gabriel Humelberg, Ravenspurgensis; Commentary on Apuleius Platonicus.					
1537		Joannes Tagautius, Vimaeus, *De...simplicibus* (Paris, 1537).				
1538					Turner's Re Herbaria (Lat.)	
1539	BOCK (Tragus), *Kreuterbuch*; in Ger.					

Date	Ger. in Latin	Misc. Langs.	Misc. in Latin	Italian, in Latin	Netherlands, in Latin	English writers in English
1539						Thomas Gybson's edn. o
						Grete Herbal.
1539	Agricola Johannes or Ammonius or Paeurle, *Medicinae herbariae.*					
1539						Rbt. Winter (claimed as S
						and as Rhenish), printer and editor at Basle, 1539, of S
						Damascenus " *De plantis libri duo* Aristoteli falso adscri
1539						Robertus Britannus, *Agi*
						turae encomium (in Latin), Paris, 1539.
1539						W. Copeland's *Boke of*
						properties of Herbes, Lon. no date.
1540	Dorstenius, *Botanicon.*					
1541						Fuscus, Remaclus Fusch ; *Nomenc*
1541				Brohon, Fr., *De stirpibus.*		Petyt's " *Properties of H*
1541				Paracelsus dies ; his Swiss-Ger. works on plants, etc., ed.		
1541				GESNER, CONRAD, 1516–1565, Zurich, *Historia plan*		
1542	FUCHS, LEONHARD, 1501–1566, *De historia stirpium.*					
1543				Fuchs, *New Kreuterbuch*, Ger. tr. of preceding.		
1543	Walter Ryff, Rivius' edn. of Diosc.					
1544					MATTHIOLI, Petrus Andreas Matthiolus ;	
1544					Gisbertus Horstius, *De Turpeto.*	
1545				Hieronymus Cardanus, *De simplicibus*, Ven		
1546						Willyam Myddleton's ed
						the " *Propertyes of Herbes ;* " modified from Banckes' o
1546				Pacini ?		Johan Scot's undated edr
						same, similar to the next.
1546						*A boke* of the properties
						bes, the whiche is called an Herbal ; Lon. 1546 ; prin
1546				BOCK, 1st edn. of his *Kreuterbuch* with figures.		
1546				Ocyorus, Oxyotus, or Schnellenberg ; Ger. ; *Experi*		
				on med. herbs.		
1546				Smith, Swedish, medical, *ny urtegaardt*, Malmo, 1546.		
1548				Robertus Constantinus, notes on Diosc. in Amatus'		
1548						Turner, *Names of Herbs.*
1549				Jean Goupyl, Fr. edr. of Dioscorides.		
1549	VALERIUS CORDUS.					
1550				Hieronymus Cardanus, *De subtilitate* libri 21		
1550						Ascham, *A Lyttel Herba*
1550						Ascham, *Astronomie* &
1551	Adam Lonitzer, *Naturalis Historia.*					
1551						TURNER, *A New Herba*
1552				Andrea Lacuna, Spanish comment. on Diosc.		
1552				Esteve, Sp., *Dictionario de las yervas.*		
1553				Pierre Belon, Bellonius, *De arboribus ;* his Travels, Fr., 15		
1554						Rembert DODOENS, Dodonaeus.
1554				Dalechamp, of Caen, Fr. " philologist botanist."		
1556				Joannes Casma Holzachius of Basle, *Annotations o*		
1556		Spiczynski, Polish, *tutecznyeh*, Cracow, 1556.				
1557	Adam Lonitzer's *Kreuterbuch*, in Ger.					

Date	Ger. in Latin	Misc. Langs.	Misc. in Latin.	Italian, in Latin	Netherlands, in Latin	English writers in English
1557						Clusius' Fr. tr. of Dodoens; and his own *Petit Recueil.*
1557						Melchior Guilandinus, Borussus; Wieland; *De stirpium*, Basle, 1557.
1558						Thevet, Fr. *Les singularitiés...Amerique*, Paris, 1558.
1560						Bruyerinus, *De re cibaria libri 22.*
1560						Mizauld, Fr., *Secretorum agri;* and *Dendranatome.*
1561						ANGUILLARA, *de Semplici.*
1561						Jhon Kynge's *The Grete Herbal.*
1561						Stupanus, Antonius, on the properties of Dioscorides' herbs (Iæyden, 1561).
1561						Valerius Cordus, "Annotationes in Dioscoridem," Strasburg, 1561.
1562						Juhasz, Hung., *Herbarium.* Thos. Penny, coll. in Switz.
1562						Bulleyne, *Book of Simples.*
1563						Garcia ab Horto, Portug., *Coloquios dos simplos*, Goa, 1563.
1565						Gesner and Moiban's edn. of Dioscorides' Euporista.
1565						Durante, *De Bonitate...alimentorum.*
1566						Calzolaris, Ital., *Il viaggio di Monte Baldo.*
1567						Maplet, *A greene forest.*
1568						Hill, *The profitable art of gardening.*
1568						Siennik, Polish, *Herbarz*, Cracow, 1568.
1569						Monardes, Sp., Historia medicinal de..Indias occidentales, Seville, 1569.
1570						Lobel and Pena, *Adversaria.*
1570						Tr. of Lemnius' *Occulta naturæ miracula* (of Antwerp, 1561; later in Eng., Fr, Ger., tr.).
1572						Fragoso, Sp., *de..aromaticas*, Madrid, 1572.
1572						Mascall, *A booke* of the arte and maner howe to plant and graffe all sortes of trees, Lon., 1572.
1573						Tusser, *500 points of good husbandry*, Lon., 1573 (new edn. by Mavor, 1812).
1574						Simler, *Vallesiae descriptio.*
1575						Carrichter, Ger., *Krauterbuch*, on signatures.
1576						LOBEL, *Observationes.*
1576						CLUSIUS, *Rariorum...Hispanias.*
1577						Frampton, *Joyful News*, tr. of Monardes.
1577						Mountaine, on gardening.
1578						Acosta, Sp., *de les drogas*, soon tr. into Eng. by Jas. Garet.
1578						Lery, Fr., *Voyage en Brésil.*
1578						Lyte, tr. of Dodoens.
1578						Thurneisser, *Historia plantarum.*
1579						Langham, *Garden of Health.*
1581						Ocsko, *Descriptio herbarum medicarum*, Cracow, 1581.
1581						Caspar Wolff, *Alphabetum empiricum*, Zurich, 1581.
1583						Rauwolf, Ger., *Raiss*, or *Itinerarium Orientis*, 1583.
1583						CAESALPINO, *De plantis libri XVI.* Florence, 1583.
1583						Clusius' *Rariorum..per Pannoniam.*
1584						Bejthe, Hung., *Stirpium...pannonicus.*

Date	Ger. in Latin	Misc. Langs.	Misc. in Latin	Italian, in Latin	Netherlands, in Latin	English writers, in English
1584			Linocier (= Du Pinet), Fr., *L'Histoire des plantes.*			
1585			Durante, Castor, *Herbaria Nuovo*, Ital.			
1586						Lyte, *Dodoens*, 2d edn.
1586	Camerarius' *Epitome.*					
1586			Durante's *Il Tesoro della sanitate.*			
1587			Molines' Dalechamp's *Historia plantarum* (Molinaeus).			
1587						Newton's *Herbal to the Bible*
1588	Camerarius' *Hortus medicus.*					
1588	Thalius, John Thal, *Sylva Hercynica* (Frankfort, 1588).					
1588	Tabernaemontanus (Rhenish), *Neuw Kreuterbuch.*					
1590			Acosta, Sp., Historia natural..de las Indias.			
1590	Camerarius' *Kreuterbuch*, in Ger.					
1590	Camerarius' *Symbolorum Centuria.*					
1590	Wigandus, *De herbis in Borussia.*					
1591				Aldrovandi, *Comments* on Dioscorides.		
1591			Paaw, *Hortus . . . Lugduno-batavae.*			
1591			JEAN BAUHIN, *De plantis* (Basle, 1591).			
1591				Cortusi, Ital. *L'horto dei simplici di Padova.*		
1592				Alpinus, Prosper Alpino, *De plantis Aegyptis lib* (his Opera posthuma, 1735).		
1592				Columna, Fabio Colonna, 1567–1650, his *Phyt basanos*, Naples, 1592; his *Ecphrasis*, Rome, 1616.		
1592				Antonio Pasini, *Annotazioni* on Diosc.		
1592			Zaluziansky, *Methoai herbariae libri tres;* Prague, 1592.			
1594	Baumgarten in Braitenbach, *Peregrinatio in Aegyptum, etc.*					
1595						Lyte, *Dodoens*, 3d edn.
1595				Pona, *Plantae . . . in Baldo monte.*		
1595			Bejthe, Hung., med., *Fuves*, Németh-Ujvarot, 1595.			
1595			Urzedow, Pol., *Herbarz Polski*, Cracow, 1595.			
1596			CASPAR BAUHIN, his *Phytopinax*, Basle, 1596.			
1596					Linschotten, *Itinerarium.*	
1596						Gerarde's *Catalogue.*
1597						Gerarde's *Herball.*
1597			Sprenger, *Horti medici* (of Heidelberg) *catalogus.*			
1598			Belleval, *Stirpium in horto Monspeliensi.*			
1599			Perez, Sp., De medicamentorum delectu, Toleti, 1599.			
1600			Serres, Fr., Le théâtre d'agriculture. Again, 1804–5.			
1600	Schenckius a Grafenberg, *Hortus Patavinus.*					
1601			CLUSIUS, *Rariorum historia.*			

PRE-CLUSIAN PLANT WRITERS IN RELATION TO ASTER

I. HIPPOCRATES

Hippocrates, "the father of medicine," of perhaps * 460–377 B. C., although mentioning † over 200 different plants, 236 according to Dierbach,‡ including a dozen or more of the Compositae, seems not to have mentioned the Aster by that name, but, instead, by the name polyopthalmon, or "the plant many-eyes."

Aster references to be expected in Hippocrates.—Later, at least from Cratevas onward, perhaps 100 B. C., the Aster Atticus held a place under its own name in the materia medica, and continued to hold it almost two thousand years. Did it already hold such a place in the age of Hippocrates? and did it receive the sanction of his personal use? It would have been very gratifying had Hippocrates left us a treatise on the materia medica of his time, but none remains. A very ancient letter survives, ascribed in antiquity to Hippocrates, and addressed to the herbalist Cratevas, delivering over to the latter the responsibility of informing the future as to the materia medica of Hippocrates' use; Hippocrates had written of the diseases, in Cratevas the world would find the plants with which Hippocrates had cured them. Present criticism deems that this ancient epistle was wrongly ascribed to Hippocrates; for Cratevas' date on other evidence must be brought down to

* Claimed by most writers (and so Harper's Classical Dictionary, 1897) following the statements of Soranus, to have lived 460–377 B. C., or later. Claimed by Adams, following Aulus Gellius, to have lived till shortly after the death of Socrates; to have been older than Socrates; and therefore to have been born perhaps 480 B. C. or earlier.

† Seventy-two works of Hippocrates which have been preserved, were so accredited and were all formed into one body even before they became known to the Alexandrian critics. Nineteenth century criticism has distinguished among these, several classes, of which "The Genuine Works of Hippocrates" were translated into English by Dr. Francis Adams for the Sydenham Society, London, 1849. Many of the other works appear to have been written by men of great ability, living not far from Hippocrates' own time, and sharers of his theory and practice. Probably some of the writers, as claimed by Prof. Peck, were the five distinguished physicians of Hippocrates' own family, his sons Thessalus and Dracon, his son-in-law Polybus and his son's sons both bearing their grandfather's name, Hippocrates.

‡ Dierbach's Arzneimittel des Hippocrates, Heidelberg, 1821; fide Meyer.

about 100 B. C.; the letter is just such a self-laudatory epistle as many an author has concocted as an humorous introduction to his works, without the intention or at the time, the possibility, of deceiving any one; and this letter cannot therefore be adduced in proof that the Aster of Cratevas was one of the remedies used by Hippocrates.

Later practice among the Greeks of the Roman Empire exalted the Aster as a remedy for inguinal tumors. Did that use for it extend so far back as Hippocrates? We search his treatise "*ad inguen*" * in vain for statements that may show which were the plants that he used. Will we have better success when we examine Hippocrates' detailed reports † of cases of inguinal tumor which he had himself treated? No, he tells us of their number, of their fatal endings, of their complication ‡ with fever, narrates the personal case of the eunuch, § and that of the fullers, ‖ and their three months' lingering; but omits, as usual, any mention of what his own treatment had been. Yet he immediately tantalizes the inquirer, in the very next case considered, by specifying for once the remedies he would use; but this case proves to be merely of cholera morbus, and though one of the remedies was itself a composite, a Lactuca, ** it has no immediate bearing on Hippocrates' remedies for tumors or for his use of Aster.

There remains one other class of evidence from Hippocrates which while it may not be positive, will at least point to a very probable result. It is his use of the name polyophthalmon, the plant *Many-eyes* if we render it literally, a plant-name which Hippocrates' manner of reference shows was then in familiar use, but which seems not to have reached us elsewhere in literature. As an adjective, to be sure, the word is still in use†† in modern as

* Hippocrates' περὶ οἰσῶν, edn. Kuhn, 574 sq. Also Foës' Lat. tr., "Ad inguen," I: 297 sq., edn. of Weckel, 1596. Also Adams' Eng. tr. "The Genuine Works of Hippocrates," 1: 71 +, "On Airs," περὶ ἀέρων.

† Hippocrates, edn. Kuhn, vol. 3; being vol. 23 of Kuhn's Medicorum Graecorum opera omnia.

‡ Do, 3; 619.

§ Do, 3; 684.

‖ Do, 3; 705.

** Used together with porrum, cepa, brassica, pepo, cucumeris and ervum.

†† Contopoulos' Modern Greek Lexicon, Smyrna and London, 1868, and Lowndes' Modern Greek Lexicon, Corfu, 1837; both quote πολυόφθαλμος as still in use for "many-eyed"; Contopoulos cites πολυόμματος as also still used, in the same sense.

in ancient Greek; but without any recognized specialization as a plant-name.*

The synonym Hyophthalmon.—Among the synonyms added to the received text of Dioscorides, is one for Aster which reads οἱ δὲ ὑόφθαλμον, *i. e.*, "some call it hyophthalmon" (pig's-eye, sow's-eye or boar-eyes). This word seems to occur nowhere else in ancient or modern Greek except in quotations of this passage; and indeed has been uniformly neglected by the Greek lexicographers,* failing to appear in Stephanus' Thesaurus † or in DuCange, ‡ and actually appearing only in Coumanoude's recent "Lexicon of uncollected words from ancient and modern writings." §

There seems little appropriateness in the name ὑόφθαλμον for Aster Atticus. The Greeks had felt the beauty of the flower; witness Nicander's epithet φωτίζοντα, "luminous," and his singling it out as fit ornament to shrine and altar. It seems unlikely that they would have framed for the aster a name ὑόφθαλμον in an intentionally derogatory sense; with ridicule as that of Aristophanes when coining the word ὑομωσία, "swinish taste in music"; or as the Greeks seem to have felt in their name ὑοσκύαμος, literally hog's-bean, the poisonous henbane, the Hyoscyamus of both ancient and modern botany. Other instances of Greek plant-names derived from swine are few: ὑόσερις, "hog's-endive," (quoted by Pliny, claimed to be *Centaurea nigra*) seems to stand alone, except for σισυρύγχιον, Sisyrinchium, "swine's snout," by them applied to some kind of iris, and explained as due to the habit of hogs of rooting up its rhizomes.‖

* Jannaris' Eng. and Mod Gr. Dict., N. Y., 1895; Legrand's Mod. Gr. and Fr. Dict., 1882; Scarlatos Byzantios' Mod. Gr. Lexicon, Athens, 1874; Paspates' Glossarion, Athens, 1888; Dehèque's Mod. Gr. and Fr. Dict., Paris, 1875; Kind's Mod. Gr. and Ger. Dict., Leipsic, 1876; Alexandros Joannos' Lexikon Triglosson, 1790; "Atakta, a Glossary," Paris, 1829; etc

† Stephanus' Thesaurus, edn. Didot, Paris, 1865.

‡ DuCange, Glossarium ad scriptores mediae et infimae Graecitatis, Leyden, 1688.

§ Athens, 1883; citing Apuleius Platonicus' quotation from Dioscorides; by name ὑοφθάλμος.

‖ Browning in his "Soliloquy in a Spanish Cloister" representing a monk in the garden as muttering "What's the Latin name for swine's-snout?" probably did not mean Sisyrinchium at all, but the common dandelion, widely known in mediaeval Europe as swine's snout, "Rostrum porcinum." In fact mediaeval Germany produced a whole crop of porcine names, both in German and in Latin; for example:

The only explanation probable for *ὑὸφθαλμον* if it was a word which really grew up among the Greeks, is that its use, as "pig's-eye," suggested a smaller size of blossom than that of *βούφθαλμον*, "ox-eye," with which the Aster was liable to confusion, and with which it was actually confounded, two thousand years later, by Anguillara, Matthioli, and many others.*

But the more probable supposition is that *ὑὸφθαλμον* was a mistake in its very beginning, and never existed till some scribe en-

Rostrum porcinum: used by Avicenna; see *infra*, under *De Manliis*. Albertus Magnus, *de vegetabilibus*, bk. vi, c. 331 (edn. Meyer and Jessen, Berlin, 1867), says of his "Endivia sylvestris," that the kind which possesses milk is called "*Rostrum porcinum* (*Leontodon taraxacum* L.) et alter caret lacte, quem vocant *caudam porcinam*." —Similarly, Albertus, iv, 145, remarks, "Ficus has milk; so has esula (*Euphorbia*) and all its kindred; similarly also that kind of the endive which is called *rostrum porcinum*." Again, Albertus, iii, 9, says "Other plants are without a silique, as the endives, among them that which is called *rostrum porcinum* and that which is called *cauda porcina*.

Cauda porcina: Albertus Magnus uses this in the two passages just cited, as name for some uncertain plant of the dandelion kind, which he describes as that kind of wild endive which is without milk. Jessen when citing the next, makes no attempt to identify this, but remarks that it nowhere else occurs as name of a composite.

Cauda porcina: seems to have been a frequent mediaeval name for *Peucedanum*; Albertus Magnus uses it so twice.

Cauda porcina: Simon Januensis uses it as a name for his Milii solis, the *Lithospermum officinale*.

* We find no other instance to indicate that the name "pig's-eye" existed among the ancients; but it did come into use in mediaeval Germany, occurring once in the form "oculus porci"; in the Latin of Albertus Magnus, but nowhere else, says his editor Jessen, unless it be the same as the "vredels oghe" or "vredels tunghe" of the Vocab. Simpl. or the "fridelsouge" or "fridelsauga" of Hildegardis' Liber subtilitatis, bk. 2, C. 131 (of date about 1150). As a synonym for this name "fridelsouge" the name "oculus consulis" appears written on the margin in the codex Guelpherbytianus, as Jessen remarks. "Oculus porci" of Albertus Magnus is identified by Jessen as *Tragopogon porrifolius* L. Albertus' account states that it is the flower which is called Flos campus, growing in elevated and dry places near paths, having "radicem delectabilem," on account of which "it is eaten as food, and pigs dig it up in the pasture; it has a rather lofty stalk, and on its top a flower which reddens itself much, and in withering retains the same color. It has leaves which are small and narrow, and cover over the flower in a very brown capsule. It is cold and dry in temperament."

Could Albertus Magnus have derived the name from a classical source? I think this unlikely; he wrote much from his own observation; next to himself, his prime source was Avicenna, but for properties rather than for names; his next source was "Circa instans" of Matteo Plateario, and in that neither this name, oculus porci, nor this plant, Tragopogon, occurs; his remaining known source was Isidorus, Bishop of Seville, 596, who died 636 A. D., but I find no indication among the plant names of Isidorus listed by Meyer, that he ever made use of this name *oculus porci*.

I think the name grew up in Germany, and that Albertus was here writing his own observations, as their realistic tone itself indicates.

tered it in the text of Dioscorides when he was intending to enter the name *πολυόφθαλμον*. Nothing would be more natural than such an omission of a first syllable. The letters for *δόφθαλμον*, without breathing or accent, are just what would appear in the lower line if the scribe was copying from a MS. in which *πολυόφθαλμον* had happened to occur divided with its first syllable completing the upper line. If in copying his glance missed that initial syllable, he may have gone on with the rest of the work unconscious of omission. When some later scribe copied this and added such breathings and accents as seemed called for, the word assumed its present form and was then recopied again and again. Perhaps this substitution of *δόφθαλμον* for *πολυόφθαλμον* occurred in the third century; perhaps after Galen, A.D. c. 180, who does not seem to know such a word as *δόφθαλμον*; but certainly as early as its appearance in the oldest existing manuscript of Dioscorides, written at the end of the fifth century.

Hippocrates' Polyophthalmon.—We conclude, therefore, that probably *πολυόφθαλμον* was a synonym for Aster Atticus; was inserted as such in early MSS. of Dioscorides; and when used by Hippocrates, probably included Aster Atticus in its reference; especially since his use for it seems akin to its use prescribed for tumors by Dioscorides.

Hippocrates' reference occurs in his Liber de Articulis,* one of his admittedly genuine works, where, speaking of sores resulting from dislocations, he says

τὰ δὲ ἕλκος ἰητρεφεῖν . . . πολυοφθάλμοισιν, . .

i. e., "the sore is to be cured by application of the plant polyophthalmon; or, he goes on to say, "by such other dressings as are used for wounds; but nothing of a very cold nature should be applied."

Galen's Polyophthalmon.—Galen, who died about 200 A.D., in his commentary on Hippocrates, writing perhaps 600 years after the above reference to polyophthalmon was written, translates it by buphthalmon, and cites Diocles as supporting him, a follower of Hippocrates who may have written about 270 B.C. Foës, making his Latin translation of Hippocrates in 1596, followed

* Hippocrates' *περὶ ἀρθρων*, edn. Kuhn, 3: 245.

Galen, and so did Kuhn, rendering it "ulcus autem. . . curandum est. . . buphthalmi foliis."

But Adams, unconvinced by Galen and others, renders it "with leaves of camomile," and adds that he believes the plant polyophthalmon is "probably *Anthemis valentina*," a plant which if the same with *Anacyclus valentinus* L., is not now known in Grecian lands.

Whatever plant it was which Galen meant by "buphthalmon," it was surely not the anthelmintic German chamomile, *Matricaria chamomilla* L. Nor was it the same, it is believed, as the buphthalmon of Dioscorides; and neither were the same as the Buphthalmum of modern botany.

Galen's commentary on the passage in question is as follows, using the Latin rendering of edn. Kuhn:

"Praecipit autem ut herbae buphthalmi, quam polyophthalmon appellat [but the Greek original is the opposite, *τῆς βοτάνης δὲ τῆς πολυοφθάλμου καλουμένης, ἥτις καὶ βοὸς ὀφθαλμὸς ὀνομάζεται*] non secus atque ante tussilaginis [*ἐχρῆτο τῶ τοῦ βηχίου*] quae eandem· vim habet, folia imponantur. Hujus quoque herbae meminit Diocles' in libro de oleribus. [*μέμνηται δὲ ταύτης τῆς βοτάνης καὶ Διοκλῆς ἐν τῶ περὶ λαχάνων.*] Tutius autem curationis caput ait id esse debere quod in libro de vulneribus capitis demonstravit, in quo ostensium a nobis est, curationem requiri sicciorem, quam quae in vulneribus circa articulos praesertim,"* *i. e.*, "Hippocrates directs, moreover, that one should place on it the leaves of the plant called polyophthalmon, which plant is also named buphthalmon. Of this plant Diocles also makes mention in his book concerning herbs," etc.

Galen's own description of his Buphthalmon is as follows;† using Kuhn's Latin version:

"Buphthalmum sic appellatum est a floribus, qui figura quidem

* Diocles of Carystus in the island of Euboea, a Greek physician of the 3d century B.C.; he (says the Biographie Générale, 1855) held an eminent place in ancient esteem; employed vegetable remedies by preference; composed a work on the utility of plants in medicine; invented the surgical instrument *le bisulque*; of his many works none remain but fragments in Galen, Coelius, Aurelianus, Oribasius, etc.; the largest remaining is a letter to King Antigonus, of Macedonia (who died B.C. 239 after a reign of 44 years), included at the end of Paulus Aegineta's 1st book of medicine. Pliny says Diocles was first in date and reputation after Hippocrates.

† Galen, edn. Kuhn, 11: 852–3.

boum oculis videantur assimiles, colore autem anthemidis floribus simillimi sunt, sed multo tum majores tum acriores. Proinde et vehementius digerunt, adeo ut et duritias sanent cerato mixti."

Confusion with Buphthalmon.—We are now prepared to compare the succession of usage of the names aster, polyopthalmon and buphthalmon.

With Hippocrates, 430? B.C., polyopthalmon only was used, and probably included several plants used for reducing tumors; *Aster Atticus* (thus accounting for the citation of polyophthalmon as a synonym for Aster); and also the yellow-flowered species *Chrysanthemum segetum* and *coronarium* of Linnaeus, and also *Anthemis tinctoria* L. Each of the four has at one time or another appeared as buphthalmon and all were doubtless early so called. This may account for Galen's citation of buphthalmon as a synonym for polyphthalmon.

Subsequently the tendency seems to have been to restrict to the larger-flowered species the name buphthalmon—ox-eye—separating the yellow-flowered species by that name and leaving polyopthalmon for aster. Which one of the yellow-flowered species would be the buphthalmon of any particular writer may have been a matter of locality as well as tradition. Just so the United States has a sliding scale of distinctions between our *daisy* and our *ox-eye daisy;* in one locality the "ox-eye daisy" is *Rudbeckia hirta*, because the largest that is common there; in others, as Virginia, where the true daisy, Bellis, was present to the thought of the people, the "ox-eye daisy" is *Leucanthemum vulgare* because it is larger than Bellis, the type.

With Diocles, 270? B.C., seems to occur the first mention of the name buphthalmon in literature—in his *de oleribus*, his περὶ λαχάνων, or Garden Herbal. Probably the buphthalmon present to his mind was *Chrysanthemum coronarium* L. (*Pinardia coronaria* Lessing) which has been often claimed to be "the ancient buphthalmon." As it produces edible stalks, it is likely to be the species intended in this lost book on garden vegetables.

Diocles may therefore have mentioned buphthalmon as a synonym of polyophthalmon, intending by it not a complete but a partial equivalent; as much as to say, "one kind of polyophthalmon

is called buphthalmon and because it is eaten as a vegetable I mention it here."

Concentration of medical use upon a species which was finally proved to possess particularly strong properties, may have gradually caused the prominence afterward assumed by *Anthemis tinctoria*, which is still labelled as *Buphthalmum vulgare* by apothecaries; and by the time of Galen that species may have become *the* buphthalmon to physicians.

Galen may have interpreted the buphthalmon of Diocles as a synonym of complete equivalence to polyophthalmon, when it was meant but as a partial equivalent.

With Galen, therefore, and with his period, buphthalmon may have meant *Anthemis tinctoria*, and he may have taken it for granted that his buphthalmon and that of Diocles were identical.

Meanwhile Dioscorides seems to have been citing polyophthalmon as a synonym for his Aster Atticus, which he called an anthemis-like flower. He used (fide Sibthorp) Anthemis melinanthes for *Anthemis tinctoria* L., Anthemis porphyranthes for *Anthemis rosea* DC., Anthemis unmodified for *Anthemis Chia* L. His Buphthalmon and his Chrysanthemon are identical and cover *Chrysanthemum coronarium* L. and perhaps *Chrysanthemum segetum* L.

Finally came Linnaeus' genus *Buphthalmum*, with still another application of the name to the related plant *B. spinosum* L. (*Pallenis spinosa* Cass.) somewhat similar to the *Anthemis tinctoria* in appearance and particularly so in its esteem as a vulnerary; this species being itself identified with Dioscorides' Aster Atticus by Anguillara, Gesner, and many others.

To sum up, these species may be thus distinguished historically:

Aster Atticus L., once famed for reducing tumors, may be in considerable part the polyophthalmon of Hippocrates.

Anthemis tinctoria L., a discutient and vulnerary, seems to have been the buphthalmon of Galen and Pliny,† the *Buphthalmum vulgare* of mediaeval and modern apothecaries,‡ the *Anthemis melinanthes* of Dioscorides, the *Bumastus virens* † of Vergil's Culex (406), the *Camomille tinctoriale* † of France; and it may have been the plant meant by some of those who have insisted that Galen's buphthalmon meant *chamomile*, though others seem to have seen in his buphthalmon the chamomile of Europe in general, *Anthemis*

nobilis L. (Adams; Dunbar; Bodaeus, 687; but *A. nobilis* seems used chiefly in the flowers, and internally.)

Chrysanthemum segetum L., the corn-marigold, is identified by Sibthorp and authors in general as included in the buphthalmon of Dioscorides*and of Nicander;§ has less active properties; is, like *Anthemis tinctoria*, the source of a yellow dye.

Chrysanthemum coronarium L. (*Pinardia coronaria* Lessing), the crown daisy, with discutient flowers, is considered to be the *chrysanthemum* and *buphthalmon* of Dioscorides,* ‡ the *chrysanthes* § of Nicander, the *chrysanthus* of Vergil's Culex † (404) and "the *buphthalmon* of the ancients" ‡ [Foster]; earlier than these, it was probably the *buphthalmon* of Diocles about 270 B. C., the *chrysios anthemos* of Sappho,‖ 85, about 611 B. C., and the *calche* or *chalcas* of Alcman, 30,¶ about 650 B. C.; and of Nicander, 2, 60.

Hippocrates' chief contribution to knowledge of Aster consists in what he says of polyophthalmon, above discussed, and in the light this throws upon the name hyophthalmon.

II. ARISTOTLE.

Aristotle, born 384 B.C., does not give descriptions of plants in his works which remain; but gives incidental references to many, 61 such plants being listed by Aubert and Wimmer as mentioned by Aristotle in their edition of the ten books of his *Thierkunde* (Leipsig, 1888); which include a few composites, as species of Carthamus, but no Aster, the nearest of kin being Aristotle's ἴσυζα (book iv, 96) regarded by Fraas as *Erigeron viscosum* L., by Sprengel as *Erigeron graveolens* L.

Throughout the great range of Aristotle's extant writings his use of ἀστήρ seems to be almost always in the primary sense of "a star" with exceptions of the giant Aster, slain by Mineus; and of his marine starfish ἀστήρ of *De animalibus*, v, 72, of which he writes ὁ δὲ καλούμενος ἀστὴρ οὕτω θερμός ἐστι τὴν φύσιν, ὥσθ' . . . ἐξωμοῦμενον.

* Sibthorp.

† Fée.

‡ Foster's Encyclopaedic Medical Dictionary, Appleton, 1890.

§ Billerbeck.

‖ "Fair girl with form beautiful as the chrysanthemum blossoms."

¶ "Wearing a golden chain woven with petals of lovely chalcas"

Aristotle's ἀστερίας, "starred," was not a plant name but denoted respectively a species of falcon, of heron and of weasel.

Aristotle's *De plantis*, so called, is not now regarded as written by him, but by Nicolaos Damascenos,* himself a second Aristotle of three centuries later. It contains no formal description of individual plants, nor any mention of asters, nor of a nearer relative perhaps than Absinthium † and Centaurea. It is devoted to the physiology of plants, undertaking interesting though then insoluble inquiries into such subjects as "Why do the leaves fall," and "Why is the leaf-green not continuous within," etc. J. C. Scaliger (1484-1558) established the fact that it was not written by Aristotle; Sprengel, 1807, classed it with the Byzantine period; both thought it of very inferior merit. By Meyer,‡ 1854, its true authorship was established, and its author elevated nearer to his due position, Meyer remarking that it is a monumental work, the only one on plant physiology in the 1500 years from Theophrastus to Albertus Magnus. Its history has been a series of the most singular vicissitudes, surviving only for a time in its original Greek, and in Syriac translation from that, and in an Arabic translation from the latter by Isaac Ben Honain; time has swept all three away; but it had been translated from the Arabic back into Latin by one Alfred who was known to Roger of Hereford of about 1170 A.D., and was probably the Norman Alfred known as de Sarchel. From this Latin retranslation it was again retranslated into Greek by one Maximus, so Hermolaus Barbarus, 1454–1493, informs us; probably by Maximus Planudes, of date 1350; and it is this Greek version which is at present known, and the imperfections in it censured by Scaliger are in fact chargeable, says Meyer, to failures on the part of its last translator.

* Nicolaos Damascenos, friend of Herod the Great, and of Augustus, to whose court he came, B.C. 5, with commendations from Herod; he was born in Damascus, was also called "of Laodicea," was greatly esteemed as historian, poet, philosopher and statesman; Augustus gave his name to a kind of date-palm Nicolaos had brought him; he wrote lost lives of Augustus and of Herod, a general history in 144 books, tragedies (as *Sosanis*, on Susannah) comedies, from one of which a fragment of 45 lines survives, a commentary on Aristotle, and philosophical treatises of his own. See Müller, Hist. of the Lit. of Anc. Gr., 3: 114, and Meyer, Geschichte der Botanik, 1: 324, also, Meyer's edition of Nicolaos Damascenos, Leipsic, 1841.

† Aristotle's περὶ φυτῶν or *De plantis*, I, 14; page 26 of edn. Didot, Paris, 1878.

‡ Finding in *Abd-Allatif on Egypt*, passages ascribed by him to Nicolaos which are identical with the corresponding passages in the so-called *Aristotle "de plantis."*

III. Theophrastus

Theophrastus,* the "father of botany," who succeeded Aristotle as President of the Lyceum 322 B. C., mentions in his History of Plants 438 species as identified by Sprengel. He also mentions others not identified, and it is further probable that many of his descriptions have not come down to us. Among them there may have been a description of Aster that is lost. His one reference to Aster is not the description which he might be expected to have written, but is a mere casual reference, and in the form of the diminutive *asteriscus*, ἀστερίσκος. Evidently *asteriscus* was a plant familiar to Theophrastus and to the Greeks among whom he wrote, and was a type long known before, its name having now already reached the diminutive stage (see p. 11).

Theophrastus' asteriscus is mentioned (bk. IV, ch. 13, p. 487) in a chapter treating of σχοῖνος (*Schoenus*) rendered *juncus* by Theodorus Gaza † and including species of *Juncus*, *Schoenus*, *Scirpus* and *Isolepis* as more recently classed. Theophrastus begins by distinguishing three kinds of rush or σχοῖνος, of which the second is characterized partly by its bearing black seeds similar to asteriscus seeds in shape. Theophrastus calls this second kind κάρπιμος or μελαγχραντισμόν, rendered by Gaza "frugifer sive atriferum," by Bodaeus "melancranis sive atriceps"; identified by Billerbeck (Flora classica, 17) as *Scirpus Holoschoenus* L., the *Isolepis Holoschoenus* R. et S., of later authors, a common plant of Greek shores: identified by Schneider and Sprengel as *Schoenus nigricans* L., which is also still found in southern Greece, etc. Of this *melancranis*, Theophrastus, describing the seed remarks,

τὸ σπερμάτιον . . . προσεμφερὲς τῷ τοῦ ἀστερίσκου . . . πλὴν ἀμενηνότερον; in Gaza's translation "Nigrum non absimile semini herbae inguinalis, verum exilius."

* Theophrastus Eresius, *De historia et de causis plantarum*: first printed, Gaza's Latin translation, Tarvisii, 1483: first in the original Greek by Aldus, Venice, 1504. My references are to the Stapelian edition, Amsterdam, 1644, by Bodaeus à Stapel.

† Theodorus Gaza, 1400–1478, born in Thessalonica, and of high position there; fled from its destruction by the Turks, 1430; was pursuing studies at Padua, 1440; later, at Ferrara; was invited to Rome 1451 by Pope Nicholas V, and remained there chiefly to his death in Calabria, 1478; had brought with him to Italy, MSS. of Aristotle and Theophrastus "which," says Sprengel, Geschichte, i., 1: 303, "he so translated into Latin as to indicate his facility rather than true knowledge," perhaps about 1451.

Two interpretations have been set up for this reference: 1st, that ἀστερίσκος means the Aster Atticus; 2d, that it means *Parietaria officinalis* L., of which polymorphous congeries *P. diffusa*, M. et K. is the chief representative now in Greece and Italy.

In favor of the rendering of asteriscus by *Aster Atticus* are the following facts:

1. *Asteriscus* is given among the Dioscoridean synonyms as a name used by some for *Aster Atticus*.

2. Most lexicographers have so received it in this passage; Stephanus, and Liddell and Scott, incline to do so; in support of which Stephanus and DuCange quote a mediaeval MSS. lexicon as agreeing (Codex Reg., 1843).

3. Theodorus Gaza, first translator, so understood it, translating *asteriscus* here by *herba inguinalis*, a common Latin equivalent for *Aster Atticus*.

4. Apuleius Platonicus, about 400 A.D., used asteriscus (without special reference to this passage, however) as equivalent to *herba inguinalis, i. e., Aster Atticus; fide* Stephanus.

5. Actuarius,* the Constantinople physician of about 1300 A.D., identified *asteriscus* with *Aster Atticus*.

6. Most commentators and editors retain this view: as the elaborate commentary of Bodaeus, 1644, after reviewing the other side at some length.

The contrary interpretation, that Theophrastus' asteriscus means *Parietaria officinalis* L. (see *supra*, 80, 81) is due to the commentator and lexicographer, Robertus Constantinus, † who, in his Greek lexicon (Geneva, 1592), omits ἀστερίσκος; in his commentary on Theophrastus he proposes this emendation:

"Ἀστερίσκου, corrupte pro ἀστεριοῦ. De Asterico herba sive perdicio vel herba urceolaris ‡ habes apud Pliniam 22, 17."

* Johannes Actuarius (Auctuarius of some), whose works are published in Ideler's Physici Gr. Minores; first published in Latin translation by Ruellius, Paris, 1539, by title of "De medicamentorum compositione." See *infra*.

† Styled "praestans vir" by Fournefort, Institutiones, 1 : 5; his Commentary had been published 1584, Leyden, and 1644, Amsterdam, the latter by Bodaeus. He is said to have been a Frenchman or at least to have written in Paris. See *infra*.

‡ Pliny quotes these names as synonyms; Billerbeck identifies them with *Parietaria officinalis* L., the Roman *perdicium*, by Galen called "περδίκιον, because the partridge's delight," by Celsus *muralis*, by Ammianus *parietina*, by Apuleius *perdicalis*, by Dioscorides and others ὑάλινη, "a semine aspero vestibus adhaerente," by the Germans known as *Glaskraut*, and, like the pansy, as *Tag und Nacht*.

Against this emendation, it may be noted, besides the observations noted above, that the best and oldest manuscripts support the reading ἀστερίσκος; and so Wimmer in the Didot edition of Theophrastus (Paris, 1866) retains ἀστερίσκος,* stating that he follows scrupulously the codex Urbinas, "much the oldest and best and fullest of the codices of Theophrastus."

Theophrastus' chief contribution to the knowledge of Aster consists of the use of this name *asteriscus*, with mention of the small seeds.

IV. NICANDER

Nicander, Greek poet and priest of Apollo,† a native of Colophon, and therefore writing in the Ionic dialect, who flourished about 160 B.C., is the source of the first commonly-received citation for Aster. His numerous descriptions and references to plants do not include Asters in his longer surviving works, his *Theriaca* and his *Alexipharmaca*, which poems have a combined length of more than 1,500 lines, and have a great deal to say of the classic *conyza*, but no mention of Aster. Nicander's actual reference to Aster is in a fragment of the second book of his *Georgica*, a lost poem of some length and apparently of much beauty. We owe the preservation of this and other fragments of Nicander's Georgics to Athenaeus,‡ that indefatigable collector of choice bits of Greek poetry. Some of these brief fragments were quoted by Athenaeus from tattered MSS. where he could not read more than he quoted.

This fragment is of some length, including 72 lines.§ The Aster is mentioned in line 66, following immediately on a catalog of flowers which, as Nicander says, "you may cull for posies," flowers from amaracus to gladiolus.

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* Though in his Latin translation he curiously renders ἀστερίσκος by "*exterion*," as if a misprint for "asterion," another Dioscoridean synonym for *Aster Atticus*.

† Priest of Apollo Didymaeus, at Claros, Ionia; son of Damnaeus and known as Colophonius from the neighboring city of his birth; is thought by Meyer to have died about 133 B.C.; mentions about 125 plants in his surviving fragments; gave his Georgics to King Attalus III., says Suidas.

‡ Athenaeus, Deipnosophists, XV, 683, of about 200 A. D.

§ Meyer claiming that the text is corrupt and "dim with mythologic fancies," says he will not translate it, Geschichte, 1: 244, perhaps because he deemed line 72 unintelligible.

Lines 66–57 read * as follows:

πᾶς δέ τις ἢ ἑλένειον ἢ ἀστέρα φωτίζοντα
δρέψας εἰνοδίοισι θεῶν παραχάζηαι σηκοῖς—

We may render these lines and their context lines 66–70, as follows:

Whoe'er indeed you may be that may gather † the luminous aster,
Or pluck the helenium, place them on the roadside shrines of the gods,
Yea, even on the images wreathe them, and that when first you behold them;
Pluck again and again these enchantments beautiful, and pluck the chrysanthemums,
And lilies, and lay them as garlands on the tombs of the weary at rest. ‡

The whole concluding passage, lines 66–72, was thus reproduced in Latin by Gorraeus, translator of Nicander, in 1557:

Quisque vero aut helenium aut astera splendentem
colligis, triviis deorum adjice aediculis
aut ipsis simulacris, quum primum conspexeris;
saepe pulcra placamenta carpens, ut chrysanthemum,
et lilia, quae in cippis marcescant defunctorum,
et gerontopogonem, et tortiles cyclamines,
et sauram, quae inferi corona dicitur Agesilai.

Against the commonly received reference of the ἀστέρα φωτίζοντα of the above passage to the Aster Amellus of Linnaeus, some might raise two objections:

1. That a more conspicuous flower than Aster Amellus should be expected, as an offering to the gods. But this objection when examined, resolves itself instead into an affirmative argument, for Virgil distinctly reiterates the use of Aster Amellus for wreathing into garlands about the altars, saying of it in his 4th Georgic,

* Didot edition of Greek Bucolic Poets, Fragments, 157–163 (Paris, 1851).

† Plucking flowers for pleasure is a strong feature of Greek poetry, from the classic myth of Proserpine gathering flowers in the meadows of Enna and from Sappho's "maiden full-tender plucking flowers," ἀνθὲ ἁμέργουσαν παῖδ' ἄγαν ἀπαλάν, to the modern Greek song that bids Charos wait that the little children he is carrying down to death may roam among the flowers again before they die: "Good Charos, halt in the village, or halt by some cool fountain, so that the little children may go and gather flowers."

The love of flowers is still very strong among the Greeks; one of their modern myrologies or songs of lamentation for the dead begins

"Round all the world God planted pinks and pomegranate flowers;"

and folk songs in the Epidorpion of Lebékos' collection speak of flower after flower as filling the air, with rose and basil, σαν τὸν ἀμάραθο, etc. (Rodd, Customs and Folk-lore of Modern Greece, 212, 285, etc.)

‡ στήλαισιν ... καμόντων; literally, on the memorial columns of those who have wearied into rest.

Saepe deum nexis ornatae torquibus arae.

Indeed it may be claimed that Vergil wrote that line with this very Georgic of Nicander in mind. And Pausanias, the Greek traveller, is claimed to have meant the aster when he narrates how the plant called asterion at Mycenae (see *infra*) was offered to Hera, and wreathed into garlands about her altars.

2. Some may object, however, that φωτίζοντα, luminous, is an unnatural epithet to use for any aster, and Nicander must have meant some more brilliant flower. This objection is met by these considerations:

(*a*) φωτίζοντα, *splendens*, is here used not in scientific description but by a poet. The thought of *shining* which was instantly called up in the Greek mind by the word for a star, was likely still to cling to the word when transferred to a flower, even though the reason for the transfer was a resemblance of shape and not particularly of brilliancy. The brightness which the poet really meant by his φωτίζοντα was probably no more than is indicated by our word *glowing*, always a current poet's epithet, and which does not necessarily imply actual gleam or phosphorescence any more when used of a glowing flower than when used of a glowing cheek.

(*b*) Nicander was not alone in calling Aster Amellus a glowing flower, for Vergil does so too when using of its flowers the verb *sublucet*. Nor did Vergil intend to suggest any very great degree of brilliancy, such as might be possible with a yellow flower: for Vergil's phrase is:

Violae sublucet purpura nigrae,

or, "the aster glows with the purple of the dark violet."

The *Hortulus* ascribed to Vergil also makes use of the verb *nitescunt* in speaking of two-colored flowers, presumably of the *Aster Atticus*; see *infra*, p. 132.

(*c*) Instead of indicating that his Aster was not the same as that which the Greeks later called aster and which is identified as *Aster Amellus* L., Nicander's phrase ἀστέρι μαφῳ τίζοντα, misunderstood and stretched into meaning phosphorescent, may have been one of the very causes for the subsequent fable about *Aster Amellus* as a flower which shines in the dark; a fable believed among Greeks and Romans for six hundred years, from Cratevas to the pseud-Apuleius, and sagely set down to the credit of this

flower under the names *Aster Atticus* and *asterion;* a fable which was also the very first bit of so-called information about the Aster to survive the Middle Ages and be set down in that mass of industrious credulity, the Ortus Sanitatis, perhaps 1400 A. D., or later.

No other among the many brief fragments of Nicander seems to apply to the aster, unless it was present to the poet's mind as one of the flowers in this last known fragment.

βάκχιοι κεφαλὰς περιανθέσιν ἐστέψαντο,

"With Bacchic wreaths of flowers they crowned their heads,"—

Coronis Bacchicis floridis capita ornarunt;

quoted by Athenaeus from Nicander's poem *In linguis.**

Nicander has also a reference to *asterion* as glowing and shining in splendor;† but his *asterion* unlike that of other classics, is a kind of lizard; so called from its star-like spots, as an early scholiast‡ on Nicander remarks.

Other Greek bucolic poets leave no surviving mention of the aster so far as I find, though they praise its relatives, the chrysanthemum,§ buphthalmon,‖ senecio,¶ etc.

Nicander's chief contribution to literature of Aster consists of his reference to the flower as glowing, as commonly plucked by flower-lovers, and as a flower fit to decorate shrines and tombs.

V. CRATEVAS.

Cratevas, the next Greek writer to speak of the Aster, may have written about 100 B. C., his date** being inferred from his dedica-

* Nicander, Didot edn., 163.

† "At vero asterion dorsi fulgore coruscum,
Virgatis splendet maculis, alboque relucet,"

Nicander's Theriaca, lines 725, 726, as translated by Gorraeus, 53, Paris, 1557.

‡ See Gorraeus' Nicander, 98.

§ Marcellus Sidetes; also Anonymi Carmen de herbis, etc.

‖ Praised by the unknown author of Anonymi Carmen de herbis; see *infra*.

¶ Praised by Damocrates, Didot's Bucolici, 129.

** I have suggested for Cratevas the date 100 B. C., a comparatively early date in Mithridates' reign, to bring him nearer in period to Andreas of 217 B. C., the other botanical writer with whom Dioscorides couples Cratevas (Diosc., introduction; and whose plant names Dioscorides compares occasionally with those of Cratevas (bk. 4, c. 35, c. 75; and see c. 33). ANDREAS, of whom little is known, was called Carystius, it would seem from nativity Carystus in Euboea like Diocles (p. 108); was a disciple of Herophilus; was author, says a scholiast on Nicander, of a work concerning

tion of his plant *Mithridation* to Mithridates the Great, king of Pontus from 120 to 63 B. C., to whom Cratevas is said to have been court-physician. Mithridates discovered the plant and had himself used it medically as a poison-antidote, and Cratevas had bestowed on it in his Rhizotomica its discoverer's name—so we learn from Pliny.*

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powers of medicines called Νάρθηκα; was reviled by the grammarian Eratosthenes as a plagiarist and styled Bibliägisthos, Book-despoiler or Cuckoo-among-books; and was probably that Andreas who was court-physician to Ptolemy Philopator. This Andreas was slain in his king's tent, 217 B. C., by Theodotus the Aetolian, in the battle of Rhaphia, during the war between Ptolemy Philopator and Antiochus the Great. Some other references to an Andreas have reached us but cannot be attributed to the Carystian with so much probability as the preceding ones cited. This Andreas is said to have been the first writer on hydrophobia (Riley's Pliny, 4 : 302, n.) and becomes therefore of special interest to the student of Asters, as his lost work is likely to have been a source from which Cratevas obtained his curious idea of using Aster Atticus as a hydrophobia-remedy (see p. 45, and p. 120). Andreas is the source of the name Cirsium, and of its use for varicose veins (Diosc. iv., 119).

*Pliny's Nat. Hist., bk. 25, c. 6, section 26; "Ipsi Mithridati Cratevas adscripsit unam, Mithridation vocatam. Huic folia duo a radice acantho similia. Caulis inter utraque sustinet roseum florem." Sprengel, Hoefer, and Meyer understand from above *adscripsit* that Cratevas named the plant for Mithridates; Riley that Cratevas ascribed the discovery of the plant to Mithridates. Probably both inferences are correct. Pliny's statement taken together with other remarks by him, shows that the plant was Mithridates' discovery, if not by original right, at least by his adoption as his own of the discoveries and medical usages of various regions and peoples, as was that great king's custom (Pliny, 25, sec. 3); and it was named Mithridation by Cratevas in his Rhizotomica, though that may have been merely applying to it in his written and formal volume a name already in use for it on the lips of physicians of that time. What the plant actually was, Fée and Riley deemed indeterminable; Commerson and Schreiber made it the *Dorstenia tambourissa* of Sonnerat; Cesalpino identified it with specimens of *Erythronium dens-canis* L. (found by Anguillara, Semplici, 174, "in agro Forojuliensi," not far from Venice) which Pliny's brief description strongly suggests except that it would be doubtful in what sense the leaves were compared to acanthus.

Another of Mithridates' plants, the *scordotis* or *scordion* of Pliny, the σκόρδιον or σκορδεῖον of Dioscorides, deemed to be the labiate Teucrium Scordium L. (Billerbeck, 147), also came to bear Mithridates' name, the Dioscoridean synonyms citing *Mithridation* as a name for it. Pliny says of it (bk. 25, sec. 27) that a description of this plant in King Mithridates' own hand was found by Lenaeus. It was evidently one of the plant-memoranda found in the cabinet of the captured king Mithridates which were translated by Lenaeus into Latin "at command," says Pliny (bk. 25, sec. 3), "of Pompey and to the benefit of mankind."

Of the other numerous personal plant-names used by Dioscorides and Pliny, the source or original author is unknown or mythical; as Eupatorium, Gentiana, Polemonium, Philaeteria, Lysimachia, in honor of kings; Heracleum, Persephonia, Circaea (for Mandragora), Apollinaris (for Hyoscyamus), Palladium (for Leontopodium), Asclepias, Chironia, Dionysias, Melampodium, Achillea, Helenium, etc., for mythic characters.

This is a very early instance of the custom since prevalent among botanists, of honoring the discoverer of a plant by conferring his name upon it, and is I think the first instance where the botanic writer conferring such a personal plant-name is himself definitely known.

Cratevas' lost work on plants called the Rhizotomica survives to us only by quotations; the citation of present interest is introduced into Dioscorides' chapter on Aster Atticus, and is as follows:

Καὶ Κρατεύας ὁ ῥιζοτόμος ἱστορεῖ· αὕτη χλωρὰ κοπεῖσα μετὰ ὀξυγγιοῦ παλαιοῦ, ποιεῖ πρὸς λυσσοδήκτους καὶ βρογχοκηλικούς· ὑπο-θυμιωμένη δὲ φυγαδεύει θηρία.

"Caeterum Crateuas herbarius hanc refert, si viridis cum axungia verere tundatur, contra rabiosorum morsus gutturisque ramices prodesse, ac suffitu quoque serpentes fugare (Saracenus' translation*) *i. e.*,

"Furthermore, Cratevas the rhizotomist states this: 'the green plant of Aster Atticus bruised and mixed with old axle-grease, is a remedy for the mad-dog's bite and for throat tumors or goitre; and if burned, its fumes put serpents to flight.'"

This quotation from Cratevas was probably introduced into Dioscorides' text by a later scholiast, according to Saracenus and other commentators, who have excluded it from the text as unworthy of Dioscorides' excellent judgment. That argument alone is not, however, a sufficient reason; for Dioscorides' attitude toward Cratevas seems to me to have been this; he held him in esteem as did Pliny, Galen and others who quoted from him; he speaks in his preface of Crataevas' plants as delineated with very keen discrimination (*ἀκριβεστέρως*); but this esteem was qualified by some limitations; and the more credulous statements of Cratevas, Dioscorides would still cite occasionally, if they were needed to complete his plan of presenting a fair résumé of the chief points of current medical opinion; Dioscorides freeing himself from responsibility for them by making a general protest against their credibility, but then continuing to cite them by such phrases as "It is said," etc. For example, in Diosc., bk. 3, c. 130 (de Phyllon), Dioscorides quotes Cratevas as mentioning a current

* Dioscorides, A, 118.

belief in the possession by that plant of a power (which man has sought in all ages) to control the sex of offspring. Dioscorides expressly adds "Cratevas narrates this; but to me such things seem to pertain to folk-lore," * and then in succeeding chapters *De Orchide*, *De Serapiade*, etc., Dioscorides continues to cite the same imagined efficacy without taking pains anew to exculpate himself from personal endorsement of its value. Such was his practice; one general disclaimer sufficed.

Comment on Cratevas' medical uses for the Aster is given, *supra*, pp. 45, 50. Credulous indeed Cratevas doubtless was, like the world in which he lived; but we deeply regret the loss of his writings, steeped in credulity though they were, for the fragments that remain are little windows through which we peep into the hidden undercurrent of plant-lore which swept on through that ancient world—in the days when even common plants were invested with marvel, before a later superficial wisdom had pronounced them weeds and ignored them as of no account.

Dioscorides and Pliny quoted independently from Cratevas; other quotations occur in Galen, and in the scholiasts to Dioscorides, Nicander and Theocritus.† In 1561 Anguillara in his *Semplici* made quotations * from a Greek MS. containing fragments of Cratevas; what this MS. was is not known; and Anguillara's *Semplici* is itself very rare; it contains 37 quotations from Cratevas; but Wellmann,‡ the latest writer on Cratevas, thinks they add little to the quotations already familar in Dioscorides. We hear also of an unedited fragment of Cratevas, of four quarto pages only, in the Imperial Library at Vienna, of which Tournefort wrote as far back as 1700, that only those could judge of Cratevas to whom it was permitted to inspect this, and on which Meyer said in 1854 that we must suspend judgment till it is studied by some one who is both philologist and botanist. Hoefer in 1856 also mentions a "Lexique Botanique"§ of Cra-

* Diosc, 3, 30, "Haec memoriae prodidit Cratevas; mihi autem videtur talia ad traditionem prosequi."

† Quotations are enumerated, Meyer's Geschichte der Botanik, 1: 252–254.

‡ Wellmann, Maximilian; "Krateuas," in Kön. Gesellsch. d. Wissensch. Göttingen.—Abhandlung. philol. hist. Klasse, N. F., 2.1 Berlin, 1897; pp 32.

§ F. Hoefer, article "Cratevas" in Biographie Générale (Didot, Paris, 1856), being an advance extract from his "Histoire de la Botanique" then unedited.

tevas (which he had found "in the midst of some alchemic Greek MSS." in the Paris Library) "which seems," he says, "to have escaped the attention of the erudite."

More was lost than mere plant-lore, however, in losing Cratevas; for he was flower-painter as well as writer, and the botanist has probably lost in his picture of Aster the first one of which the past will unveil the name of the painter. There were three rhizotomists, says Pliny,* or herbalists, or lovers of plants for their own sake—however we may paraphrase it—and they were Cratevas, Dionysius † and Metrodorus. ‡ Their habit was to paint a figure of each plant they considered in their writings, adding a description of the properties which the plant possessed. Since Cratevas wrote of the Aster the inference follows that he also painted it. Pliny indicates that the method of these Greek plant-illustrators was to paint the original figure, expecting this original to be continuously copied by scribes at the same time with the description; each copy should become a hand-illuminated manuscript with figures and text; but Pliny states that the figures were apt to degenerate in the process, from unskillful copyists. Galen, apparently annoyed at the lack of a plant diagnosis for each species, complains § that the descriptions of plants which he found in Cratevas could not be understood without the figures ("sine aspectu"). It may well be that many copies of Cratevas' figures were still preserved, however, and were still being repeated; some of which

* Pliny, Nat. Hist., 25, 4.

† Dionysius—one of over a hundred Greeks of this name enumerated by Fabricius—was probably Dionysius Itykaos (*i. e.*, of Utica, and also called Dionysius Uticensis), author of a lost Rhizotomica (mentioned by a scholiast on Nicander's Theriaca, 520), and who was probably the same as the Cassius Dionysius Uticensis, a writer of Georgics. One indication of his date is Pliny's order of reference, which may show that he continued the plant-paintings of Cratevas and was later in time; or that he was possibly coeval but of minor importance. Pliny, 8, 84, and 10, 98, is supposed to refer to the same Dionysius as "the translator of Mago," the Carthaginian (the Father of Agriculture, says *Columella*) from the Punic into Greek, in 28 books condensed by Dionysius into 20, and dedicated to the Roman praetor Sextilius, furnishing Riley with a date for Dionysius of 40 B.C. Pliny also used a Greek epitome of Dionysius, made by Diophanes of Bithynia (as Pliny states, 8, 84 and 10, 98) and dedicated to King Deiotarus of Galatia (who died shortly after B.C. 42).

‡ Metrodorus was probably, says Haller, that Metrodorus, who was a disciple of the Bithynian physician Asclepiades (who came to Rome B.C. 89 and founded an important school of medicine). Wellmann dates Metrodorus "in the reign of Augustus."

§ Galen, de Antidot.

may have formed originals for the figures still found in early manuscripts of Dioscorides.—Since writing this last sentence I find that Wellmann in his remarks on Cratevas in 1897 had anticipated me in my suggestion that the figures in MSS. of Dioscorides may be due ultimately to Cratevas and may retain some traces of the figures which he and his fellow plant-painters supplied. For Wellmann, after reviewing the early codices of Dioscorides which possess colored figures, remarks (pp. 29, 30) that the foundation for the illustrations in the MSS. of Dioscorides "lies in something before Dioscorides, in an illustrated herbarium (*ein illustriertes herbarium*) composed in the manner and in the age of Cratevas, Dionysius and Metrodorus."

Cratevas' chief contribution to the knowledge of Aster consists of his painting, lost but perhaps surviving in traces in MSS. of Dioscorides; and in his folk-lore as to the properties of the plant.

VI. VERGIL.

For the next reference to the Aster we turn to the Romans, and we find it in Vergil. Cato (234–149 B. C.) and Varro (117–26 B. C.) mentioned respectively 125 * and 107 * plants, but among them few Compositae—except Absinthium. Vergil (70–19 B. C.), though a poet, mentioned 164 * plants—a greater number than those of the professed writers on agriculture. Meyer † remarks the fact that Cato gives descriptions of a few plants, Varro not of a single one; but Vergil of at least one, and that one our Aster Amellus.

Vergil knew this flower by the name Amellus, ‡ and located it among the banks of the river Mella, from which river Servius says it received its name.

The Amellus was evidently a favorite flower with Vergil; it was the only flower singled out in the Georgics for detailed description; Vergil's description is very accurate, as Keightley observes; § and Fée remarks || that it is written "avec une sorte

* Meyer's figures.

† Geschichte, 1: 374.

‡ See p. 23 for the identification of this Amellus with the Aster Atticus of Dioscorides; early made, 1544 probably, by Matthioli. Bodaeus, 1644, says, "Aster Atticus, ut dixi, Amellus est."

§ Thos. Keightley, Flora Virgiliana, 377, in his edition of Vergil, 1847.

|| Fée, Flore de Virgile in OEuvres de Virgile, par M. Charpentier, Paris, 1835:—Vol. 4.

de prédilection," so much so that the plant was sometimes called Vergil's flower. It grew near his Mantuan home, but not southward, except in the mountains. When robbed of his paternal estate and sojourning in Rome or Naples, the poet no longer saw his home flower about him. The flower seems to have become entwined in his affection with the memory of that twice lost patrimony which had been Vergil's devotion, where he had spent his boyhood among his father's bees, gathering Amellus flowers along the rocks of the river; a patrimony from which he was an exile now in this year 30 B. C., when completing at Naples * this fourth book of the Georgics.

Vergil's description of Amellus.—Vergil's subject in this fourth Georgic, both before and after the reference to Amellus, is that of bees—a subject associated again with Amellus at a later time in the writings of Columella; an association between Amellus and the bees which may have been greatly strengthened in the Roman mind by the identity of the middle syllable of the plant name with the Latin word for honey. In his genial discursive way Vergil has been referring to the hardships of bees in winter and severe weather, a subject of which Vergil's youth had brought him practical experience, his father deriving no small profit from the apiary on his farm. Next he alludes to methods of aiding the bees when languishing from disease. Then, says he, "burn odorous galbanum, and put honey in their troughs through pipes of reed, mixing it with the flavor of powdered gallnuts and dried roses, or must boiled down over a slow fire, or raisins from the Psithian vine, or Cecropian thyme or strong-smelling rosemary." Then follows the classic passage recommending boiled amellus roots and wine as a nourishing food for bees when ailing, the ninth of his remedies for languishing bees, as Wedel observes; a passage so often quoted that Sprengel calls it "tritissimus," but its beauty has borne quotation well, and we cite it here entire, first translating:

* M. Tenore is quoted by Fée in his Flore de Virgile as having recently (1835) looked in vain for Aster Amellus near Naples; just as Vergil perhaps did when at Naples, over 1800 years before. The smaller flowered *Aster acris* L. (*Galatella punctata angustifolia* DC.) which abounds in wet lands about Naples, was far from satisfying either poet or botanist. Habitats cited by Nyman for Aster Amellus; Switzerland, Austria, Germany, France, Northern Italy, Dalmatia, Croatia, Hungary, Transylvania, southern and middle Russia; besides Attica and Luxembourg; and Asia. Ray, *Historia Plantarum*, 1: 268 (1686), cited Sicily also as a habitat for Aster Amellus.

"There is also a flower in the meadows, on which the name amellus is bestowed by the farmers; a quick-found plant to the searcher; for from its base of tangled * sod it raises up a great forest of stalks. Golden it is itself, but in the rays which are abundantly shed round it, glows the purple of the dark violet. Often the altars of the gods are festooned with its woven garlands. Bitter in the mouth is its taste; in the shorn autumn valleys shepherds gather it; they cull it by the curves of the river o Mella. Boil its roots in odorous wine, and place it as food in full baskets in the doorways of the hives."

Est etiam flos in pratis, cui nomen amello
Fecere agricolae, facilis quaerentibus herba;
Namque imo ingentem tollit de cespite silvam,
Aureus ipse; sed in foliis † quae pluvima circum
Funduntur violae sublucet purpura nigrae;
Saepe deum nexis ornatae torquibus arae;
Asper in ore sapor ‡; tonsis in vallibus illum
Pastores; et curva legunt prope flumina Mellae.†
Hujus odorato radices incoque Baccho,§
Pabulaque in foribus plenis adpone canistris.

Wm. Sotheby, Esq., in his "Translation of the Georgics," London, 1815, p. 201, renders as follows:

* The root of Aster Amellus, says Martyn, Georgics, 389 (1741), "consists of a great bunch of fibres," adding that Vergil evidently meant here by *cespes* not turf but "radix cespitosa," "a root whose fibres are thick matted together so as to form a kind of turf." So the old Roman commentator Philargyrus had understood it, writing "Non de terra, sed de radice." Such a great tangled mass of fibres was well represented in the commentary on Dioscorides by Matthioli as early as the figure in my Latin edition of Venice 1560 (p. 572); another Latin edition of the same printer, 1565 (ex libris E. L. Greene), shows a much larger figure, nearly a whole folio page, developed from the same plan as the preceding, but the tufted tangle of roots still more pronounced, and the "forest of stalks" displaying some 15 principal stems.

† Folia, or leaves, for rays, was a natural and probably common classical expression. So Dioscorides calls the rays *phyllaria*, little leaves. So Palladius, bk. 7, c. 10, describing the preparation of the oil from chamomile blossoms, says: Take an ounce of the yellow center of the flower (auream medietatem), "having thrown away the white *leaves* by which the flower is encompassed," as Owen renders it.

‡ Praised by Bodaeus as particularly applicable to Aster Amellus or Atticus, "huic sapor est asper," Comm. on Theophrastus, p. 821–2.

§ This line is quoted by the grammarian, M. Valerius Probus, Grammaticae Institutiones, 16, 8; an interesting fact to those who believe this Probus to be the same as the grammarian, Valerius Probus, of about A.D. 100, who possessed a copy of a part of the Georgics with corrections upon it in Vergil's own hand; but whose commentary on Vergil is now little known to us except through references in Servius.

"In fields there grows a flower of pastoral fame
Amellus, so the shepherds call its name,—
Sprung from one root its stalks profusely spread,
A golden circle glitters on its head,
But many a leaf with purple violet crowned
Throws a soft shade the yellow disk around.
Though rough to taste, yet wreathed round many a shrine,
In rich festoons the golden blossoms shine.
Along meandering Mella's grassy plain
Its radiant lustre tempts the shepherd swain.
Seeth in rich wine its roots and oft renewed
High pile before their gates the alluring food."

Voss rendered lines 274 and 275 in his German translation,

Gold ist die Scheibe der Blum, allein auf den häufigen Blättern
Ringsum glänz der dunklen Viol' anmuthiger Purpur.

Old John Gerarde * gives a quaint English version of lines 271–275, saying it is in English thus,

With little search in medowes green a flowre is to be found,
The countrie swains do clepe the same Starwoort. Out of the ground
One root doth sprout, which spredes broade with branches thicke and wide,
Of colour like the finest golde in fire that hath beene tride.
The leaves which bud on every side in a round and thicke rank
Have such a purple colour as darke Violets on banke."

These lines of Gerarde have the swing and the gusto of Chapman. But within forty years taste had so changed that in Johnson's remodelled edition of Gerarde's Herball (1633), the editor, Thomas Johnson, thinking mechanical metre better than vigor, substitutes the following rendering:

"In Meades there is a floure Amello named,
By him that seekes it easie to be found,
For that it seemes by many branches framed
Into a little Wood; like gold the ground
Thereof appeares, but leaves that it beset
Shine in the colour of the Violet."

That the dark violet color of Viola odorata was what Vergil actually meant here in attributing the same color to his Aster is shown by his references to "Viola nigra" † in his Eclogues,‡ which is also identified by Fée as Viola odorata.

* Gerarde's Herball, 394. London, 1597.

† From Theocritus' ἰὸν μέλαν to the modern pansy known as "King of the Blacks," the darker violet colors have passed for black. They do so yet in Greece.

‡ Ecl. x, 39; v. 38.

Controversies over the meaning of this description.—Among English translators in verse many could not understand purple leaves as a part of a golden flower. Says Martyn, "Our translators have greatly erred—for May represents the leaves of the stalk as being purple;

> "For from one root he spreads a wood of boughs,
> Whose many leaves, although the flower be gold,
> Black violets' dimme purple color hold."

"Addison has very much deviated from the sense of his author:

> 'A mighty spring works in its root, and cleaves
> The mighty stalk, and shews itself in leaves:
> The flow'r itself is of a golden hue,
> The leaves inclining to a darker blue.
> The leaves shoot thick about the flow'r, and grow
> Into a bush, and shade the turf below.

"Dryden took the *folia quae plurima circum funduntur* to be the branches of the plant:

> 'For from one root the rising stem bestows
> A wood of leaves, and *vi'let purple boughs:*
> The flow'r itself is glorious to behold,
> And shines on altars like refulgent gold.

"Dr. Trapp supposes the stem to be golden, and the leaves purple:

> 'For from one turf a mighty grove it bears;
> Its *stem of golden hue*, but in its *leaves*,
> Which copious round it sprout, the purple teint
> Of deep-dy'd violets more glossy shines."

Another feature in Vergil's description which has been variously understood is his epithet for what I have called "the shorn autumn valleys." I take it that the poet meant by *tonsis*, shorn, to suggest time of year as well as place; that he meant to imply that the flower bloomed in the late summer and fall, when in the valley-lands where it grew the meadow-grounds were now mown and the pasture-lands had been shaven close by the flocks; so that it was now in shorn valleys, "in valleys where cattle have grazed" as Martyn suggests, that the shepherds would gather it, picking it from rock-borders and ledges where it grew near the river. Not that it grew exactly in the mown part nor sprung up after mowing; struggling with which ideas trouble came to some

commentators, some of whom with Servius* interpret *tonsis* as simply unwooded, clear and open, which is less natural. La Cerda, Ruaeus, and Trapp interpret *tonsis* as mown, which is better, but has less general and less poetic value than *shorn*.

One suspected line.—One line and one only in the cited passage about Amellus, has been doubted by some commentators. This is the line "*Saepe deum . . . arae.*" It is retained by Burmann, though he thinks the metre a little limping, and inserts *hinc* after *deum*. The line is retained also by Wagner, though he thinks it crept into the text from the margin but from Vergil's own hand. The challenger of its authenticity is Weichert,† who notes "its needlessness, its languor, and the change of tense, and doubts if the word *torques* could be properly used of garlands of flowers." Jahn and Forbiger agree with Weichert; Keightley and Ribbeck incline to him also, the latter adding the argument that the commentators Servius and Philargyrus do not notice the line. But there are many undoubted lines which Servius and the fragments of Philargyrus do not notice.

I should also defend the line for several other reasons. It is not needless, but adds an important touch of dignity to Vergil's flower. It is not excessively languorous, but has the movement characteristic of mild reminiscence so frequent in Vergil. Its use of *torques*, a collar, as an encircling band of flowers, is not in the least unnatural to a poet, and is scarce more remote from the original sense than Vergil's use for it again in the Georgics for an ox-yoke, or Pliny's for a band of color around a bird's neck. Furthermore the verse is found in all the MSS. of the Georgics, including the esteemed Codex Vaticanus, and the Palatine and the Mediceus, all of which date back to the fourth or fifth century. It should require much stronger reasons for rejection of lines on which all these MSS. agree.

Whether the line was written by Vergil or an ancient Roman interpolator, it shows that to the mind of the Latin writers, as to the Greek Nicander, the aster was a flower fit to decorate the altars and was actually so used.

* Servius interprets *tonsis* as *non silvosis*, and explains that the poet used it in contrast with wooded mountains which he had called *intonsi*, or shaggy. But to make the argument from supposed contrast valid the two usages should have been in juxtaposition.

† "De vers. injur. suspect.," p. 63 as quoted in Keightley's Vergil, p. 311.

Use of the Name Amellus.—The entire appearance of the name Amellus in literature seems due to its single occurrence in Vergil. Columella, the other Latin author who mentions the plant, may have obtained his knowledge of it only from this source; and so, of course, may Servius and the other Latin commentators. The word occurs also, in quoting the line, in Julius Rufinianus, and in Arusianus, about 450 A.D. Of its Italian form *amello*, mention has been already made, p. 61. It has appeared in four principal ways, also in modern botany; Linnaeus adopting it as the species-name, *Aster Amellus*, 1753; and bestowing it also as a generic name on a race of Cape of Good Hope plants close to the true Asters, but with a chaffy receptacle. Adanson substituted Amellus for Aster as a generic name in its entirety; except that he separated *Aster Tripolium* L., and retained the name Aster for that; a *mesalliance* by which he attached the name Aster to that particular species which the ancients did not consider to be an Aster, and struck it off from the one plant for which they did use the name. Colonna had preceded him in using Amellus as a genus-name for Aster, 1592–1616, calling our *Aster Amellus* by the name *Amellus pratensis*, and referring to Tripolium as *Amellus palustris*. Calzolaris in his account of the plants of Monte Baldo, near Verona (Venice, 1566), in calling our Aster Amellus by the name *Amellus Virgilii*, may or may not have intended the phrase as a binomial in place of Aster.

Variants for *Amellus* are *Amello*, its current Italian form; *Amillo*, in the Palatine codex of the Georgics; *Amella*, in Servius' commentary. Wedel in 1686 claimed that we do not know the gender of Vergil's noun, and that the nominative was more probably *Amellum*, Vergil mentioning it only in the dative, *Amello*.

A Folk-name.—*Amellus* seems to have been only in pastoral use; not at Rome, where it did not grow; not in literary or naturalist's Latin, which used the word *Aster;* not in the Latin of the Roman physicians, which used the terms *herba inguinalis* and *inguinaria*. If Vergil's "cui nomen amello fecere agricolae" is to be taken literally, the word was the colloquial name in Cisalpine Gaul; and so Martyn and Wedel considered it, Martyn remarking "the poet tells us Amellus is a rustick name."

Source.—Vergil's special mention of its growth "along the curving river Mella" * seems to hint at a belief on his part that the two names were of common origin. Where the names vary, as in the ancient and much-esteemed Palatine codex, they vary together, substituting *i* for *e* of both names, making them *Amillus* and *Milla*. But they may really have had nothing to do with each other until their similar sound caught the fancy of the poet. If the river was named from the plant, it would imply great familiarity and wide usage on the part of the plant name, neither of which seem to have been true; the many American names which have originated so, as the Greenbrier river, Hemlock and Alder creeks, Laurel run, etc., are derived from conspicuous plants with familiar, not unusual, names. If the plant was named from the river it may be difficult to parallel the case in modern usage. The ancients thought they had such an example in the plant Asterion which Pausanias remarks is called by the name of the river on the banks of which it grows; but probably there was no original connection between the two words. Servius,† however, the great commentator on Vergil, claimed that the name Amellus, or Amella as he terms it, was derived from the river, remarking:

"Mella fluvius Galliae et juxta quem herba haec plurima nascitur: unde et amella dicitur, sicut populi habitantes juxta Lemannum lacum Alemani dicuntur."

Was the river-name Mella a Celtic survival?—The name of this river Mella in Lombardy, and the several other rivers of the same name, the two Samnite cities Melae and Meles (Livy) and the two ancient towns in Hispania Baetica named *Mellaria*, and the ancient Gaulish city *Melodunum*, now *Melun* on the Seine, all suggest a common origin, and seem scattered survivors from an earlier occupation than the Roman. Taylor‡ interprets Melodunum as

* This river Mella (variants were Mela and Milla) still retains its ancient name, being known as Mella or Mela. The Mella rises in the Alps, and falls into the Oglio (the ancient Ollius) just before that river reaches the Po. Catullus, lxvii, 33, refers to the Mella as flowing through the city of Brixia (modern Brescia); it is at present one and one-half miles from it.

† Servius Maurus Honoratus, who flourished perhaps 390 A. D. The elaborate commentary which passes under his name has many later but undistinguishable accretions, as is indicated by the variants of its MSS. The comment quoted above may, therefore, be not of Servius' own, but may be some scribe's introduction.

‡ Rev. Isaac Taylor, "Names and their Histories," 1896, and his "Words and their Places," 222 (1865), following a suggestion from Glück, Kelt. Nam. 139.

from the Celtic roots *moel* = rounded hill and *dun* = fort; like Meldon and perhaps Maldon in Great Britain. Perhaps all the other cities are from *moel* also, and were hill-towns. The *Amella* was a river from the hills; but its name may have had a more specialized origin; it may have been the name of some neighboring rounded hill, and may have been fortuitously shifted to the river near; a kind of transfer very common when people become heirs to the local names of an earlier race; as the *Genesee*, = beautiful valley, applied by the Indians to a flood-plain, by the whites to the river beside it.

Was the Plant-name Amellus also a Survival from an Earlier Race?—The plant Camomile in its Greek form is commonly interpreted as meaning ground-apple, and as due to the apple-like smell of the flowers. I have long wondered if that is not a later sophistication, and if *-μῆλον* in this word, *-milla* in its Latin equivalent, did not really represent some earlier generalized name for a small bushy plant. If so *Amellus* may have been the same word without modifying prefix. Recently I find that over four hundred years ago, Hermolaus Barbarus, first great Italian commentator on the natural history of the ancients, had anticipated me in expressing, in part, the same idea, suggesting that the names *Amellus* and *Camomilla* are of the same source, and as he would surmise, perhaps of the same plant. While not agreeing with him in the last particular, there seems good ground for following up the first suggestion, even though it received the scorn of Wedel, who called it "Peculiaris opinio." There are also two other occurrences of the name *mella* that need explanation; Sibthorp found it used in Arcadia for the mistletoe; and as far back as about 600 A.D. Isidore of Seville, first Gothic writer on plants, mentions *Mella* as a name for the Lotus or Aegyptian bean, and *Malomellus* for some plant unknown.

Was the Plant-name Amellus Derived from Mel, Honey?—"Amellus, a flower visited by bees," says Fée. Vergil and Columella both speak of the flower as an important source of food to bees. Did Amellus mean to Vergil the *honey-flower*, strangely connecting with the call of *μελί*, honey, cried in the streets of Athens to-day by honey venders from Hymettus?

That this was the origin of the name was evidently the belief

of that ancient scholiast who wrote the gloss on a margin o Vergil, identifying Amellus with *Melissophyllon.* But that plant the honey-balm, honey-leaf literally, in its form *μελίφυλλον*, had, a Bodaeus observes, no proper color or form to agree with th amellus of Vergil. Yet Salmasius, the learned commentator of the seventeenth century, subscribed * to this identification.

That Amellus was connected with *mel*, honey, though in a different way, was also the belief of Wedel, who argued its identity with his *Melilotus luteus*, the *Melilotus officinalis* Willd., though a more violent contrast to Vergil's description could hardly be found.

Personally I am inclined to think the resemblance of the word *Amellus* to *mel* is purely accidental.

Singularly enough, when Müller, watching *A. Amellus* L., to see what insects visited it, at Haarhausen in Thuringia, on Sept. 13, 1871, found it thronged with numerous apparent bees— they proved on close examination to be the dipterous insect *Eristalis arbustorum* L., the well-known bee-mimicking fly which in shape, size and color is with difficulty distinguished from the honey-bee even when at rest. Did all the Roman reputation of the flower as one of the wild plants loved by bees, rest on observation of similar visits of Eristalis, mistaken for an actual bee? But Vergil's father was a practical bee-keeper, and made a good income from his honey, and it was not made from *Eristalis.* No doubt a longer scrutiny of the flowers now would have shown the honey-bee an actual visitor, as it is so to American Asters, and to their European kindred Anthemis tinctoria, Conyza squarrosa, etc.

A second Vergilian reference to Aster has been claimed as follows: Among the "Minora" or shorter poems attributed to Vergil, occurs a little poem under the title, as printed by Koberger, of "P. V. Maronis hortulus," † in which among the flowers of the garden some are mentioned as "two-colored," and which may have been the violet and yellow blossoms of his favorite, the Aster Amellus. The poet, Vergil or mediaeval follower, writes,

> Flores nitescunt discolore gramine
> Pinguntque terras gemineis honoribus,
> Apes susurro murmurant gratae leni,
> Cum summa florum vel novos rores legunt.

* Salmasius, Plinian. Exercit. in Solin. 102.

† Vergil, edn. Koberger, Nuremberg, 1492; fol. 318.

We may render :

> Flowers shine there with two-colored sprays
> And paint the turfs with twin graces ;
> Bees murmur pleasingly their light susurrus,
> Culling from the topmost blossoms or the latest dewdrop.

Aemilius Macer Veronensis.

The preceding lines are just such as we might suppose might have been written about Vergil's garden by his friend the poet Aemilius Macer,* of Verona, perhaps the most distinctively a poet of plants that Latinity produced, but whose works are lost to us. He was from Verona, near which the Aster Amellus still grows. We may suppose that it was familiar to him, as well as the other flowers of that northern part of Italy. Because he, as Ovid† tells us (writing "*Quaeque necet serpens, quae juvat herba, Macer*"), wrote of the plants which were potent against serpents, it is not unlikely that he may, like Cratevas, have mentioned the belief that the Aster's fumes would put serpents to flight. But only slight fragments‡ of Macer remain, and what the friend of Vergil and Tibullus had to say of the Aster we are likely never to know.

Vergil's contribution to the knowledge of Aster, consisting of his ten lines on Amellus, is the principal ancient description outside of medicine.

VII. CELSUS.

Cornelius Celsus, who wrote his eight books De Medicina§ perhaps about 40 A. D., seems not to have used *aster* or *amellus* as a plant-name, but makes mention of the use of something which he calls *Asteriace*, the sole occurrence‖ of the word so far as ap-

* Author of an Ornithogonia, a poem on birds, perhaps his chief original work ; of a Theriaca and an Alexipharmaca, probably modelled on those of Nicander (perhaps mere translations, surmises Meyer) ; died in Asia, 15 B. C.

† Ovid, Trist, iv, eclog. 10, v. 44.

‡ There is a line about Ocymum "Inter praeteritas numerabitur ocymos herbas." A few other lines are wrongly attributed to him ; as six lines on *Allium* ascribed to "Aemilius Macer, lib. I, cap. 5" by Arnaldus de Villanova in his Commentary on the *Regimen sanitatis Salerni*, as published by Sylvius in his *Schola Salernitana*, 120 (Col n., 1667) ; beginning *Allia qui mane jejuno sumpserit ore ; etc.* These lines seem to belong neither to the Roman nor to the mediaeval Macer.—Fragments of genuine lines are given, Fabricius ; Bibliotheca Graeca, 13 : 36, etc.

§ His only work which has survived entire ; first printed Florence, by Nicalao, 1478 : edited by Milligen, Edinburgh, 1826 : by Renzi, Naples, 1851–2 ; etc.

‖ Celsus, V. 5, 14.

pears in Latin or in ancient or modern Greek. Meyer suggests that it was perhaps a plant. It is possible that it is merely another synonym for Aster, like *asterion*, and *asteriscus*, for the latter of which it may possibly be a false reading. Harper's Lat. Dict. suggests that it is the name of a medicine. Several medical preparations were later known by the name *aster* (see pp. 85, 88), and it is on the whole probable that this was one of that class.

VIII. COLUMELLA

Columella,* the Roman writer on agriculture, of about 51 A. D., mentions Aster by the name Amellus in his *De re rustica*,† bk. I., c. 4, sec. 4, where his subject has been the aversion of bees to the yew. He then, like Vergil, or copying from Vergil, enumerates the Amellus as one of the native plants of Italy of which bees are particularly fond, in the following words:

"Mille praeterea semine vel crudo cespite virentia, vel subacta sulco, flores amicissimos apibus creant, ut sunt in irriguo‡ solo [virgineo solo, *Codex Longobardus*] frutices § amelli, caules acanthini, scapus asphodeli,‖ gladiolus narcissi.¶ At in hortensi lira consita nitent candida lilia, nec his sordidiora leucoia, tum punicae rosae, luteolaeque et Sarranae violae,** nec minus coelestis numinis

*L. Junius Moderatus Columella, born at Gades (Cadiz) in Spain, resided in Rome, travelled in Syria, Cilicia, etc. His surviving work, *De re rustica*, is in 12 books, the 10th a poem, *De cultu hortorum* (Parma, 1478, etc.). Of an earlier work on the same subject, one book, *De arboribus* remains. See p. 137.

† First printed 1470, Venice, by Nicolaus Jenson, together with Cato, etc. Edited in his "Scriptures rei rusticae," *i. e.*, chiefly Cato, Varro, Columella and Palladius, by J. M. Gesner, 1735, etc. Edited last by Schneider, 1794–7.

‡ So codices Medicei, followed by Politian, Victorius, Fritzsch and Schneider.

§ Not meant for *shrubs* in technical sense, for I find Columella using *frutex* of *olus*, kitchen vegetables; and of the lupine. Commentators who have claimed from *frutices* in this passage, that Columella never saw the Amellus, can no more draw such an inference from this assumed false description than from Vergil's speaking of its clustered stems as "a forest of stalks."

‖ Pontedera, commenting on Columella, and praising his style, remarks of the phrase *frutices amelli, caules acanthini, scapus asphodeli*, that it is "elegans illa loquendi forma." Pontedera claims that Palladius imitated this passage, replacing Amellus by Citrago. See *infra*, under *Palladius*.

¶ The word *gladiolus* belongs here with *narcissus*, appropriately observes Pontedera "gladiolum ob similitudinem appellatum."

** Two kinds of violets, observes Fritzsch, the yellowish, and the Sarranian or Tyrian or purplish.

hyacinthus, Corycius item Siculusque bulbus croci deponitur, qui coloret odoretque mella"; or in English:

"Moreover, a thousand seeds, either growing green in their native turf, or in the deep-tilled trench, bring into being flowers most friendly to the bees; as are, in their well-watered soil, the little bushes of aster, the stems of acanthus, the flower-shaft of asphodel, the little sword of narcissus. But in the prepared garden-beds shine white lilies, nor less than these, though more dim, the snowdrops, and then the ruddy roses, and the yellow and the purple violets; nor less dear to the celestial powers, the hyacinth; likewise the bulb of the Corycian and of the Sicilian crocus is set in the ground there, the crocus, that it may give color and may give odor to honey."

Columella, having thus mentioned Amellus at the head of his first list, the best wild sources of honey, proceeds with a second class of inferior sources, as follows:

"Now indeed there are produced of lesser note, innumerable herbs of both classes, in cultivated and in pastured lands, which make the wax of the honeycomb to abound; as the common lapsana,* and more valuable than that, the armoracia,† and the greens of wild rape, the wild chicory, and the flowers of black poppy; and then, the field parsnip, and, of the same name, that all-tamed parsnip which the Greeks call *Staphylinon*.

"In truth, above all those which I have mentioned, and those which I have omitted, in consequence of brevity of time—for beyond computation is their number—it is thyme which gives to honey the most excellent flavor."

Columella makes mention of Amellus also when discussing the disease of bees which he terms *profluvies alui*, "caused ‡ he says by overfeeding on *tithymalus* and *ulmus*," in the beginning of spring, and from which they die unless it is speedily checked. The trouble may be healed, he remarks, "by supplying them medicated food. Hyginus,§ following older authors, recommends keeping the bees

*Charlock, *Harper's Dict.*

†Horse-radish is armoracia; one MS. reads aremorana.

‡Columella, bk. xiii, c. 13, section 8.

§C. Julius Hyginus, from Spain, a friend of Ovid, and a freedman of Augustus, who placed him in the Palatine Library; was author of many lost works, including the one on agriculture cited above, also "Commentaries on Vergil," accounts of the Penates, of the sites of the cities of *Italy*, etc.

in a dry place through the winter, and changing to a sunny exposure in spring"—as quoted by Pliny.

"To such languishing bees," continues Columella, "should be given grains of pomegranate bruised and stirred into Aminean wine;* or of raisins pounded up with an equal measure of Syriac-dew † moistened with an austere wine; or if each by itself is not efficacious, all should be used together, weighed out in equal weights, and heated ‡ in a pottery vase with Aminean wine, but quickly cooled, and placed in wooden troughs § before the bees.

"Some offer rosemary brewed in sweetened water, etc.

"The disease is at its height at a time when some bees will bring out the bodies of the dead from their domiciles, and others walled within lie motionless in sad silence as overcome by public calamity. When the hive is found in that extremity, foods are to be offered, poured out in troughs of reed, well boiled down in honey and rubbed up with gall or dry rose. It is well also to burn galbanum, that it may heal by its odor.

"Best ‖ of remedies, however, is the root of Amellus; which is a yellow shrub,¶ with purple flowers; boiled with old Aminean wine, it is wrung out, and so weighed out, its juice is given them."

"Hyginus indeed, in that book which he wrote concerning bees, says Aristomachus** considers that the bees should be treated in this manner; first removal of the affected comb, then fresh food given, and fumigation."

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* Aminean wine, that of Aminea, a region in Picenum, famed for the vine.

† "Cum rore Syriaco"; but another ancient reading is "sutorio"; and others amend to "coriariorum ros" or "rhus."

‡ Et in fictili vase.

§ Ligneis canalibus.

‖ "Optime tamen facit Amelli radix; cujus est frutex luteus, purpureus flos; cum vetere Amineo vino decocta exprimitur, et ita liquatus ejus succus datur."

¶ Martyn (Georgics, 389) remarks of the above, "Columella, not being acquainted with this herb himself, makes it a yellow shrub with purple flowers." But *frutex* meant with him merely a branching plant with some stiffness; and very likely he wrote *fruticis*, meaning "a shrub with yellow and purple flowers." Pontedera suggests "Cum Virgilius amelli florem aureum purpureumque docet scriberem 'Cuius est fruticis luteus purpureus flos,' sive abflecto frutex, 'cuius est luteus purpureusque flos.'"

**Aristomachus Solensis, who was, says Pliny, "for 58 years so absorbed with the love of bees that he attended to nothing else but to take care of bees and write books about them."

Columella's chief contribution * *to knowledge of Aster* is his assigning it high rank as a favorite source of honey to the bees: and his setting forth the manner of its use as a remedy for them in disease. Compared with Vergil, he lacks description; he may have owed his knowledge of the plant partly to Vergil, and partly to current reputation among others fond like himself of country life; he may never have seen it in its native state; he adds to what Vergil

* Of Columella little has been written for a hundred years, till just now there reaches us a dissertation presented for the doctorate by Wm. Becher, *De Columellae vita et scriptis*, Leipsic, Teubner, 1897. Becher's principal points made are these:

The latest edition of Columella is that of Schneider, 1794–7. Men disagree greatly about Columella; some hold him the best of writers *de rustica*, and *elegantissimus poeta*; some, but a rude compiler. Columella was born of a not ignoble family at Cadiz, about the beginning of the Christian era, and knew rural life there; in Rome he frequented schools of rhetoric and of other Greek and Roman learning; was military tribune in Syria and Cilicia, returned to honors in Italy, and retired to rural life in his *agellum Ardentinum*. Under Tiberius or between 20–30 A. D., he had written his three short books on agriculture, his *Praecepta rustica*, addressed to Eprius Marcellus; a work now lost in its full form but known to Pliny and from which Pliny took the extracts he quotes from Columella. The second book of these *Praecepta* survives forming the book of Columella now known as "*De arboribus*," a work of his youth, imbued with his fatherland at Cadiz. It had its influence on his contemporaries, and following Columella's example, Atticus, Celsus and Graecinus took to writing *de rustica*.

Meanwhile Columella composed an astrological work, now lost, filled his mind with results of Greek and Roman culture, and continued his own studies of rural life, diligently scrutinizing the writings of his contemporaries and elders, though not always possessing accurate copies, so that his quotations cannot be relied on as unimpeachable authority for minor matters of text. Moved by the prayers of Silvinus Caeretanus, he began thirty years after his first similar work, to write out his *De re rustica* in ten books, between 51 and 61 A. D., sending single books to Silvinus at his *agellum Caeretanum*. Entreated by his friends he added a book of "*gromatica praecepta*," taken, says Columella, "ex trito commentariolo,' but without naming the author. After the manner of Vergil, he wrote a book, *de hortulano*, on garden culture, adding an index which is now lost.

Of his contemporaries none but Pliny mentions him, and Pliny knew only his earlier work. Writers of succeeding ages who mention him are:

Eumelus, *veterinarius*, perhaps 210 A. D., who has ten passages supposed to be derived from Columella.

Gargilius Martialis, 220 A. D., quotes Pliny and Columella on the chestnut.

Palladius, perhaps 440 A. D., quotes from all of Columella's 12 books; and Columella is also mentioned by an unknown interpretator of Servius' commentary on Vergil, and by Vegetius, Pelagonius and Cassiodorus.

Cassiodorus, of about 540 A. D., a man of widest reading and great erudition, for his own part praises the elegance of Columella's work, and evidently was personally acquainted with it; but states that had been superseded by the writings of Palladius, saying "Palladius censured him, and the volumes of Columella passed into oblivion. Columella's volumes contain so many arguments and full complex treatises that for his

wrote, however, that the wine used be that of Aminea; and pictures the Amellus as first of wild plants after the thyme in attractiveness to bees. His calling it a yellow shrub with purple flowers has been criticised as heedlessness, but he may actually have written "of this shrub the flowers are yellow and purple."

DIOSCORIDEAN PERIOD—IX. DIOSCORIDES

The one comparatively full description of Aster which antiquity has bequeathed us is that of Dioscorides Anazarbeus, of about 65 A. D.; in that age of contrasts, while Rome put forth her worst in Nero and her best in Seneca. Then, almost in a moment, came the great blossoming time of natural history and medicine, in the works of Pliny, Dioscorides and Aretaeus, of dates perhaps about 77, 65 and 55 A. D.

Aretaeus of Cappadocia, "the most important Greek medical writer since Hippocrates" (Kuhn), wrote in Ionic about 55 A. D., his extant writings being *De causis* and *De curatione morborum*, each in four books; a book *De re pharmaceutis* is lost, in which references to Aster Atticus should be sought. The Aster mentioned * in his extant works, ἀστὴρ λευκός, is a white earth of great repute in ancient medicine as an astringent; see *supra*, p. 83.

contemporaries and for the husbandmen for whose use they were meant they were the roughest of reading,—*ad legendum asperrimi.*"

Isidorus Hispatensis, about 600 A. D., calls Columella "insignis orator, qui totum corpus disciplinae ejusdem complexus est."

Columella's manner of writing shows his love for his subject and agrees with his own remark that from boyhood he was an ardent lover of the country: "a puero rusticationis amantissimus." Probably it was family influence that called him to city life. When, long after, he returned to the country, he wrote anew, that he might encourage the husbandmen and recall citizens to pristine manners. Before he left Spain he had known the works of Bolus Mendesius, held Vergil's poem "in deliciis," and Cato in esteem, and had doubtless become especially indebted to Mago, the Carthaginian writer on agriculture, whom he praises particularly. Columella possessed while yet a boy a copy of Vergil's Georgics and says, "he held Vergil's poems in delight from his youth."

Ribbeck, the textual critic of Vergil, claims that Columella in quoting Vergil, mixed his quotations as if by inexact memory, fitting in bits of the poem into his own writings as they came to his mind. Becher, printing the parallel passages, does not agree with Ribbeck's implied charge of "beplastering his writings with fragments of Vergil," but thinks Columella planned to make quotations of sense with altered words, and occasionally to quote a line from a copy he had, which was however a copy with interpolations, and does not supply the authentic text.

* Aretaeus, edn. Kuhn, bk. 2, c. 2.

Dioscorides, a Cilician * Greek, the most precise authority for plant descriptions previous to Bock, seems to have written a little later than Aretaeus, perhaps ten years, or about 65 A. D., certainly before the death of Nero in 68 A. D. Some have placed Dioscorides later than Pliny, even at 100 A. D. or later. But Pliny probably meant Dioscorides when he spoke of "certain recent writings on medical plants"; and he seems to have made about 200 quotations from him, though without giving his name. Hence Dioscorides should be assigned a date just older than Pliny. That the date was in Nero's reign seems evident; for—

1. Dioscorides' five books *De materia medica* bear a dedication to a famed physician of Nero's reign, Areus Asclepiadeus.†

2. Dioscorides Anazarbeus (unless it could be proved that the less known Dioscorides Phaca was meant) was cited by name of *Dioscorides*, in Erotian's *Vocabulary of Hippocrates*, dedicated to Andromachus,‡ Nero's court-physician.

3. The Euporista, attributed to Dioscorides Anazarbeus, was also dedicated ‡ to Andromachus,§ either by Dioscorides himself or by some one who sought reputation under his name and used his probable date.

We assume with Sprengel, Smith, etc., that the Andromachus meant was the elder and better known physician of the name, who died probably not later than 66 A. D., as he had been succeeded by his son Andromachus before Nero's death in 68. It follows that 65 A. D. is the nearest date to Pliny at which it appears probable that Dioscorides could have completed his writings.

There were at least three medical writers named Dioscorides; the great Dioscorides Anazarbeus, not later than 65 A. D.; pre-

* Native of Anazarbus, in Cilicia. He is sometimes called Tarseus, from Tarsus, the nearest large city.

† Friend of Licinius whose father Lecanius Bassus was a consul under Nero.

‡ There were two court-physicians to Nero named Andromachus; the elder was of Crete, inventor of the famous antidote called by his name and still in use after 1800 years, the Theriaca Andromachi, described by him in an extant poem of that name of 174 lines: which mentions about 70 plants but not the Aster. Dying toward the end of Nero's reign, he was succeeded by his son Andromachus the younger, author it is claimed of a work on pharmacy in three books, of which only a few fragments remain.

§ If as claimed by some the Euporista was written about 600 A.D.—or if about 300 instead—by a writer who fabricated the names of Dioscorides as author and Andromachus as patron, it still points to Nero's reign as the time then assigned to Dioscorides, whose supposed contemporary the fabricator desired to name as his patron.

ceded by a Dioscorides Phaca, the Herophilean, of about 50 B. C., who left, says Suidas, 24 books *de medica arte* (now lost); and succeeded by a Dioscorides the Younger * of about 100 A. D., probably author, thought Sprengel, of the 6th and 7th so-called books of Dioscorides Anazarbeus; or of the 6th only, thought Meyer.

Dioscorides' works remaining are, 1st, the five books *De materia medica*, † *περὶ ὕλης ἰατρικῆς*, his famed descriptions of plants closing with the fourth; the plants have been counted as 700, of which the identity of at least 400 is known; 2d, two books, *De alexipharmacis* and *De theriaca*, already united to the preceding five in the 7th or 8th century, also classed with them by Photius in the 9th century, but separated by Saracenus and Sprengel. Sprengel ascribed both, Meyer one only, to Dioscorides the Younger.

Third among the works ascribed to Dioscorides Anazarbeus is that variously known as *Euporista*, or *De Parabilibus*, *περὶ εὐπορίστων*, the *Hausmittel* or "Household Remedies," in two books, preserved to us only in a single manuscript, the Augustan, first printed and edited at Strasburg, 1565, by Moiban and Gesner, who deemed it a spurious work of Dioscorides; edited with Dioscorides, but deemed spurious,‡ by Saracenus in 1598 and Sprengel, 1830, but claimed as perhaps genuine by Meyer in 1855, though he was doubting it again in 1857.

In this Euporista, bk. II, c. 115, the author mentions 72 plants efficacious against viper bites, used in wine or in food; among them the 23d is, *ἀστέρος ἀττικοῦ τὸ ἄνθος*, *i. e.*, "the flower of Aster Atticus"; the 6th remedy following is the white earth of Samos, used for the same purpose, and called *γῆς σαμίας*

* Known as *the Glossographt* because author of a commentary on Hippocrates (fide *Galen*); was probably the same as Dioscorides the Alexandrine; is twice called *the Younger* by Galen; wrote descriptions of plants and animals, compiled from Anazarbeus, Cratevas, etc.

† Best edition, by Sprengel, Leipsic, 2 vols., 1829 and 1830. First critical edition, by Saracenus, Frankfort, 1598. First published in the original Greek in Venice by Aldus, 1504; a Latin translation had been first printed in 1478. First printed in other translations, the Italian translation by Fausto da Longiano, 1542, at Venice, and that of Matthioli, 1544, also at Venice; in German, by von Ast, 1546, at Frankfort; in French by Matthee, 1553 at Lyons; in Spanish by de Laguna, 1555. For commentators, etc., *vide infra*, under *Arabic writers* and under the *Revival of Learning*.

‡ Because containing three or four names supposed not to be introduced into Greek till about 600 A. D., but which might have been interpolations. Oribasius quotes this Euporista apparently, about 362 A. D.

τοῦ ἀστέρος, or Aster Samius; the adjectives serving well to distinguish the two uses of the word Aster; see *supra*, p. 83.

Dioscorides' description of Aster Atticus constitutes the 118th chapter (120th by Saracenus' numbering, 110th of others) of his 4th book, following that on Cirsion (*Cirsium*) and succeeded by those on Isopyron and on Viola purpurea (*i. e.*, *Viola odorata* L., with addition perhaps from Aster). I quote it from Sprengel's edition,* retaining his brackets for the parts he thinks subsequently added, subjoining on each page my translation and adding notes on variant readings in the MSS. Constantinus (C) and Neapolitanus (N.) For review of the description and properties, see pp. 25, 39, etc.

Κεφ. ρη΄. (ρκ΄) [περὶ Ἀστέρος Ἀττικοῦ.]

Ἀστὴρ ἀττικὸς † [οἱ δὲ ἀστερίσκος, οἱ δὲ ἀστέριον, οἱ δὲ βουβώνιον,‡ οἱ δὲ ὑόφθαλμον, Ῥωμαῖοι ἐγγυνάλις,§ Δακοὶ ῥαθιβιδα‖] ῥαβδίον ξυλώδες,¶ ἐπ᾽ ἄκρου ἔχον ἄνθες πορφυροῦν** καὶ μήλινον, ὥσπερ ἀστερίσκος κεφάλαιον περισχεδὲς·†† ἔχει δὲ φυλλάρια ἀστέρι ὅμοια; τὰ δὲ περὶ τὸν καυλὸν φύλλα ὑπομήκη καὶ ὀασέα.

CHAPTER 118 (120) [CONCERNING ASTER ATTICUS]

Aster Atticus [which some call asteriscus, some asterion, some bubonion, some hyophthalmon (*i. e.*, polyopthalmon), the Romans inguinalis, the Dacians rathibida] bears a woody little stem, having, at the summit, flowers purple or yellow,‡‡ just like a daisy in shape; in a split border around the little head it bears

* Kuhn's *Medicorum Graecorum opera omnia*, 25 : 605-606. Leipsic, 1829.

† Concerning Dioscorides' binomials, see *supra*, p. 65.

‡ Oribasius has *οἱ δὲ βουβώνιον*.

§ C and N have *ἐγγυνάλις* : others *ἐγγυνάλις*.

The synonyms are all bracketed by Sprengel, following Saracenus. But the first four are such as Dioscorides Anazarbeus may properly be supposed to have written in himself; *ἐγγυνάλις* may have been added by Dioscorides the Younger, about 100 A.D., and the Dacian name by some other about 200 A.D.

¶ C has *ῥαβδία ξυλώδη*.

** and, so read Marcellus Vergilius, V. Cordus, Matthioli, Sprengel: instead of which the codices, with Serapion, Ruellius, Cornarius, Anguillara and Saracenus, read *ἢ* "or." Saracenus understood *ἢ* to mean "of two kinds, with purple or with yellow rays." If *ἢ* is the true reading, as codices indicate, I would, instead, interpret it "with flowers which may be called purple, or called yellow, as they are both."

†† C and N have *περὶ σχέσιν φυλλαρίων στενῶν* "with a border around of narrow sheets." They lack *ἀστέρι ὅμοια*, but that is found in Serapion, and in Oribasius, who earlier than C.

‡‡ *I. e.*, "flowers which may be called purple, or yellow, as they are both."

leaflets just like a star; but those leaves which are along the stem are oblong and hairy.

[*Ὠφελεῖ δὲ στόμαχον ἐκπυρούμενον, καταπλασσόμενον, καὶ ὀφθαλμῶν φλεγμονάς καὶ βουβῶνας, καὶ τὰς προπτώσεις ἕδρας· φασὶ δὲ τὸ πορφυρίζον τοῦ ἄνθους, μεθ' ὕδατος ποθὲν συναγχικοῖς βοηθεῖν καὶ ἐπιληψίας παίδων.*] *

Ἁρμόζει δὲ καταπλασσόμενον ὑγρὸν πρὸς βουβώνων φλεγμονάς· ξηρὸν δὲ ἀναιρεθὲν τῇ ἀριστερᾷ χειρὶ † τοῦ ἀλγοῦντος, καὶ περιαφθὲν τῷ βουβῶνι ἀπαλλάσσει τῆς ὀδύνης.

It is an aid to a burning stomach when applied as a plaster, and for styes on the eyes and for tumors of the groin, and for hemorrhoids. They say that the purple part of the flower, taken as a drink with water, is a help in labor-pains and in the epileptic fits of children.

It is a remedy, when applied moist as a plaster, for tumors of the groin; and dry, when held in the left hand of one in labor-pains, and when tied on around the groin it relieves the pain.

[*Γίνεται ‡ δὲ μέσον πετρῶν καὶ τόπων τραχέων. Ταύτης οἱ ἀστέρες ἐν νυκτὶ λάμπουσιν· οἱ γὰρ μὴ εἰδότες, ὅταν αὐτὴν ἴδωσι, νομίζουσι φάντασμα εἶναι· εὑρίσκεται δὲ παρὰ βυσσοῖς προβάτων. Καὶ Κρατεύας ὁ ῥιζοτόμος ἱστορεῖ· αὕτη χλωρὰ κοπεῖσα μετὰ ὀξυγγίου παλαιοῦ, ποιεῖ πρὸς λυσσοδήκτους καὶ βρογχοκηλικούς· ὑποθυμιωμένη δὲ φυγαδεύει θηρία.*]

[It grows in the midst of rocks and rough places. The stars

* Rejected by Sprengel (not by Saracenus) because occurring also under Viola. But that may more likely have been repeated from this.

† C prefixes *ἀπό*.

‡ Of this bracketed portion, Sprengel remarks "It is absurd and smacks of a superstition foreign to the author. It is not found in the oldest manuscripts nor in ancient commentators." Saracenus, following Marcellus Vergilius, remanded it to his *notha*. Perhaps it was inserted by Dioscorides the Younger, about 100 A.D., who was a compiler from Cratevas.

Of the previous bracketed portion, *ὠφελεῖ ... παίδων* was deemed an interpolation by Sprengel, and suspected (though retained) by Saracenus, these lines are lacking in C. are not quoted by Pliny or Galen or Avicenna; but are in Serapion and all editions (*Sprengel*). They are repeated with but slight change, two chapters onward, of the violet; from which chapter, thought Saracenus, they might have been transferred to this. I think there are too many differences of phrase and arrangement to permit this hypothesis for the first part, *ὠφελεῖ—ἕδρας*; though the following words, *φασὶ—παίδων*, being alike in both, may have been a copyist's reduplication, word for word. See pp. 143-146.

this plant shine forth in the night; so that those who do not derstand, when they see this, suppose it to be a phantasm; but it found and known by the shepherds of the flocks. Furthermore, atevas, the rhizotomist, states this: "The green plant, bruised id mixed wirh old axle-grease, is a remedy for the mad-dog's te and for throat-tumor or goitre; and if burned its fumes put rpents to flight."]

DIOSCORIDES' PURPLE VIOLET

Repetition of Aster-properties under Viola. Dioscorides proceeds, after Aster Atticus, to describe his Isopyron, variously identified as covering *Isopyron thalictroides* L., and also as a Fumaria r an Aquilegia. Next, he describes his Ion, the *Viola purpurea* f Pliny, our *Viola odorata* L. After describing the violet's ivy-ke but darker leaf, and its love of shade, in terms applicable to *Tola odorata*, he mentions its properties as a refrigerant and then numerates properties which duplicate some already narrated for Aster Atticus. The repeated lines read as follows—quoting Saracenus' Latin version, which retains the duplicate properties under both plants:

"Folia . . . stomacho ardenti, oculorum inflammationibus, procidentique sedi auxiliantur. Aiunt et id quod in flore purpureum est in aqua potum, angina laborantibus, puerisque comitialibus * opitulari."

Matthioli, edn. 1560, p. 574, quoting the Arabic Mesue as "giving the faculties of the purple violet exquisitely," cites Mesue's version of the last sentence in the words "et morbo regio laborantibus opitulantur." Fuchs repeats the same in the form "puerorum comitialibus mederi affirmant" (Fuchs, 309. 1551).

Commentators have suspected that the repetition here was accidental. If so, the kinship of the repeated characters with others of Aster Atticus and their unlikeness to others of *Viola odorata* points to Aster as their source. If they were accidentally duplicated by a scribe in one of the two occurrences, as it is a more natural and more frequent copyist's error to repeat lines already written than to anticipate, it remains more probable that the Aster

* This supposed efficacy for epilepsy continued to be cited for Viola through the Arabic writers and the Renaissance; the "epileptics' violet" of a gloss c. 1499.

chapter contained the lines originally than that the description of Viola did so.

On the other hand, Saracenus deemed their source the Violet, because the lines in question occur in Pliny, not under Aster but under Viola; and so in Galen and Avicenna who seem here to have simply copied Pliny. But Serapion attributes these properties to both Aster and Viola.

Violet early a composite term. There is another way to explain the repetition. *Ion* may have been not a single entity but a composite term. To some of the Greeks this purple Aster may have been known as "purple violet," ἴον πορφυροῦν. The Greeks used *ion* for as widely different a flower as our snowdrop (Leucojum), their *leuco-ion*; their purple violet as understood by Pliny included probably a number of widely different flowers, one of them still retaining the name of Violet in its compound name Dame's Violet, *Hesperis matronalis* L. The Romans thus called a number of violet-colored flowers by the name violet, and this is presumptive evidence that the Greeks had done so. Mediaeval and Renaissance usage did so to a surprising extent,—see *infra*, under *Arnald*; and the tendency is still strong to-day, observable not only among colored people on the Potomac, who habitually call bluets "*violets*," but among botanical works, which still print Erythronium as "dog-tooth-violet."

Purple Violet sometimes a synonym for Aster

My suggestion is therefore this: that some among the Greeks called Aster Amellus by the name ἴον πορφυροῦν, purple violet, by extension of the name to other flowers having the color of the violet; that some * among the multitudinous medical writers now lost, wrote out its reputed properties, calling the plant ἴον πορφυροῦν, from which Pliny copied the statements under discussion; and from him Galen and Avicenna derived theirs. Meanwhile Dioscorides, knowing the plant as Aster Atticus, inserted all these reputed properties under that name; and some scribe, copying his MS, observing them given under Viola by others, inserted them there also in the Dioscoridean text.

* We may imagine Andreas of Carystus in Euboea doing so, a writer whose early life was in the Aster-region, and from whom Pliny and Dioscorides quoted independently.

We will find the duplicate properties repeated occasionally under both plants by authors to Fuchs in 1551, and will discover one great mediaeval physician, Arnald de Villanova, who, about 1310, had perceived the incongruity of these imported characters with those of *Viola odorata* L., and who wrote that *they probably belonged to a different violet.*

DIOSCORIDES' DACIAN NAME FOR ASTER

Dioscorides' Synonyms. One of the most valuable parts of Dioscorides' work is the series of Greek, Latin, Carthaginian and other plant-names, quoted with each species described. Many of these may have been subsequent additions,* but many others occur as if a part of the original text, and some of them occur in Pliny, quoted, it is claimed, from the text of Dioscorides. Sprengel, editing Dioscorides in 1829, writes that the names in use for plants in various nations "were collected by Dioscorides scientifically," "during his travels to Egypt, Carthage, Italy, Gaul and Spain." Without predicating genuineness of all, I shall simply refer to these synonyms as "Dioscoridean."

Rathibida. The Dioscoridean synonyms record Rathibida, ῥαθιβίδα, as the name for Aster Atticus among the Dacians, *i. e.*, if in Dacia proper, in the region north of the Danube where it still grows and where it is particularly widely distributed. This name Rathibida of the MSS. may stand there in corrupt form, from error of copyist or from defect of the ear of the original investigator; and in some later copyings it lost its last consonant, appearing in Bock as Rathibia and in John Lonitzer as Rathibis. However, assuming that ῥαθιβίδα of the MSS. is substantially the original form, inquiry at once arises if it can be paralleled at all in the Greek—presumably the nearest cognate language to the obscure Dacian or Thracian.

If the second syllable were an intrusion, it might be compared 1st with Dioscorides' own word βάβδιον in the immediate connection = a little bush, a twig, a small stem. Or, 2d, with ῥεβίθη, present

* Such are bracketed by Sprengel (but with the usual practice of bracketing all synonyms indiscriminately) following the example of Saracenus, who himself followed the acute judgement of Marcellus Vergilius, the sagacious commentator on Dioscorides whose Latin translation appeared in 1518.

name in Crete for the ἐρεβίνθος of *D*, *Cicer arietinum*; a very dissimilar plant. If a first syllable had been lost from such a ῥάβεδα, it might be compared, 3d, with the present name in Zante for the composite plant Zacintha verrucosa, καραβίδο-χόρτον, "tigerbeetle's grass," or "blisterbeetle weed."

But these suggestions do not explain the name as it stands. In the existing form ῥαθίβεδα has the aspect of a compound name formed of ῥᾶ, or, what may be the same, a root ῥατ—meaning a plant, a weed; with addition of an adjective ending. In fact, it has the form to suggest an origin, 4th, as ῥᾶ θηβαίδος, "Rha of the Thebaid," *Theban plant*, formed like ῥᾶ ποντικόν, Rhaponticum, *D*, 3, 2, *the Rha of Pontus*; or like ῥᾶ βάρβαρον,* Rhabarbarum, the same plant, from which form its present name Rhubarb comes. Perhaps ῥαθίβεδα preserves in its first syllable that otherwise unknown but cognate root † *rat*—which forms the Old High German *rato* and the Old Low German *rado*, a weed, source of the present German *raden*, cockleweed.

Finally, and most probably, the root of θηβός, admirable, remarkable, the supposed source of the name of Boeotian Thebes, may give a suitable meaning joined with ῥᾶ or ῥατ—and equivalent to "remarkable plant."

Comparison with Other Dacian Plant-names.—The Dioscoridean synonyms include as many as 31 Dacian names. A few are very much like the corresponding Greek names; as Dacian βλήζ, Greek βλῆτον, Lat. Blitum, Eng. *blite*. For *Salvia Horminum* L., Dioscorides' Greek name is ὅρμινον, the Dacian ὄρμα. For bugloss, Dioscorides has Greek βούγλωσσον, and has βουδάλλα as the Dacian, as if the Dacian for *ox* was identical with the Greek; as indeed would be theoretically probable. For the elder, *Sambucus nigra* L., held in such reverence among the Greeks even to-day (and formerly by many other European races) the Greek ‡ σαμβούχος of to-day is a

* If the Greek ῥᾶ, which appears only in this plant name, had any connection with the root of L. *Radix*, a root, Gr. ῥάδις a branch, the ancients did not themselves feel it so; at least the historian Ammianus Marcellinus, about 400 A. D., expressly declares that it is from the River *Rha*, the Volga. Rha, as the name of that river, seems a Finnic name, the Finnish tribes, Mordvins, etc., now on its banks, still calling it *Rhau*.

† Kluge's Etymological Dict. of Ger., Davis' tr., 1891.

‡ The more usual and colloquial Greek for this elder is ζεκορφνία, *Attica;* Theophrastus and Dioscorides call it ἀκτή, Pliny *actaea*.

late importation, from the Latin it may be claimed, and the Latin *Sambucus* was by the Romans said to be derived from their use of its wood for their musical instrument sambuca, the Gr. *σαμβύκη*. But musical instrument and name are traceable to Syria, and any connection with sambucus the elder was probably an after thought. A connection may exist however in the Dacian for elder, which comes to us as *σέβα*, and may suggest Gr. *σέβας* "awe," the holy wood ;* or may have lost its last syllable and may have been identical with Latin *sambucus* in the form of *sabucus* used by Sammonicus.

Other Dacian names which may have been derived from the Latin (or may have been merely cognate with it) are *λάξ* for Portulaca (the Greek being the dissimilar *ἀνδράχνη*), and *τουτράστρα* for Colocynth (Gr. *χολοκύνθη*), where the Dacian suggests modification from such a Latin source as *tort-astrum*,=twist-plant, not unnatural for a plant in repute for violent emetic properties, as colocynth was then and now.

The other Dacian names have varying degrees of difference from the Greek ; from names of incongruous suggestion like that for Eryngium, *σικυοπνοές*, which may be read as cucumber-bunch, and for Adiantum, *φιλοφθέθελα*, which seems a stuttering utterance of the lover of seseli † ; to names of no obvious suggestion, as *δῦν* for Urtica and *χρουστάνη* for Chelidonium majus.

The Dacians.—How happened it that a people speaking a language even as much like classical Greek as the foregoing names indicate, should have been living in Dacia? and who were these Dacians who were so far developed as to have transmitted to us their name for Aster? Following the views of Robert Roesler, "Romänische Studien, Leipsic, 1871," recent students believe, as Rennell Rodd, 1892, that the pre-Roman Dacians were of the old Thracian race, and were kindred in speech and blood to the Greeks. These Dacians, north of the Danube, were conquered by Trajan 106 A. D., who planted his Roman colony among them, withdrawn by Aurelian under pressure from the Goths 150 years later. The Roman army, officials and colonists, now moving south

* The Greeks now call an amulet *τίμιον ξύλον*, "revered wood."

† Dioscorides' *σέσελι*, later *καυκαλίδα* and *Tordylium officinale*, common in Grecian lands.

of the Danube, established their new homes in a part of Moesia, which now became called Moesio-Dacia, and its people the *Μοισιόδακες*; or by the Romans called Dacia Ripensis or Aurelia, officially so constituted as a province under Diocletian; but itself at length overrun by the barbarians; its inhabitants taking to the mountains, finally migrating north, toward 1200 A. D., and south also but in smaller numbers. These inhabitants of Thracian origin, now for centuries assimilated to Rome and partly descended from the Roman colonists, now called themselves Roumans (later giving name to Roumania), and at some time later than Trajan, a few of their plant-names gathered by some unknown collector, found their way among the Dioscoridean synonyms before the copying in 492 of the MS. now existing. So we may explain resemblances to Latin as well as to Greek; rather than to adopt the theory cherished at one time by Sprengel that these and other synonyms were personally collected by Dioscorides Anazarbeus himself during his travels; which would date them probably as early as 60 A. D., before the beginning of the blending of Latin and Thracian by Trajan's colony of 106 A. D., from which the Roumans claim to be descended. To those remnants who did not pass northward in the 12th century but moved southward, persisting in the mountains of Macedonia, Thessaly and Epirus, the name Vlach, *Βλάχος*, *i. e.*, Wallachian, became attached, and the region Megalovlachia in the Thessalian mountains has received their name. Those of Megalovlachia claim descent from Pompey's army defeated at Pharsalia in Thessaly, 48 B. C. Prominent settlements of the Vlach race remain in Greece proper only on Pindus and Olympus. Transient abiding places are numerous among the other mountains, as in Attica itself, where they lead the life of shepherds. The name Vlach has from this fact passed into a second significance, merely *shepherd* (see p 37), among many Greeks and among recent writers, and "so applied to the Greek and Albanian herdsmen of the Morea," *Rodd*, though other Greeks say "we would not think ourselves of using it for any but only of the race of the *Βλάχοι*" (*Attica*).

Conclusion.—Perhaps the name *Rathibida* for Aster was native, we may infer, to the old Thracian speech; was in use among the Dacian branch, while the name *Aster* held current among the Greek branches proper. Perhaps the plant-names called *Dacian* in Dios-

les were added to the MS. before 250 A. D., while the origina ia survived, before the terms *Aurelian* or *Moesio-Dacian* be- : likely to replace the unmodified form *Dacian*. Certainly were added to the MS. before the writing of those MSS. from h came the oldest existing codices, dating from the 5th century onward; and pretty surely before Apuleius Platonicus wrote numerous synonyms, perhaps about 400 A. D. So we may lude that some one collected these Dacian names, probably in ia north of the Danube, perhaps between 200 and 250 A. D., n the Roman colony had already existed a century or more had begun to produce in the native Thracian speech that se- of changes in vocabulary and syntax which has persuaded so ıy students that the modern Wallachian tongue * is "lineally :ended from the Latin."

CODICES OF DIOSCORIDES

One of the most interesting of all the features of the MSS. of oscorides s the presence of colored figures, one for each plant a rule, figures which presumably reflect features from the fig- :s of Cratevas though mingled with many crude accretions. Of ese MSS. the following seem each to contain an Aster figure.†

—C. Codex Constantinus at Vienna, brought from Constanti- ple to Matthioli by Busbequius ‡; known as C; of the 5th cen- ıry, the scribe attesting that he wrote § it by command of Juliana ınicia, daughter of the emperor Olyber (Flavius Anicius Olybrius), ho died 472 A.D. Its letters are large, with no accents or dia- ritic signs: it contains 387 parchment leaves, with alphabetical ar- rangement of subjects, and 380 illustrations, each introduced by the received Greek name of the plant in red, and followed by an Ara-

* While many features in their speech are believed to represent elements no older than Latin, the myths and lore still current among the Vlachs may go back beyond the old Thracian; Rodd believed that "much of their mythic lore may be really from a time before the dispersion of the Western Aryans," *Rodd*, 42.

† Wellmann, "Krateuas," Berlin, 1897. See *supra*, p. 121–3.

‡ Augier Busbecq, a Flemish antiquary and diplomatist, 1522–1592, Austrian ambassador to Constantinople, who took care to collect for the Vienna library such MSS. as had survived the fall of the Greek empire, bringing to Vienna not only ancient Greek codices like C above, but also recent Greek folk songs (now edited by Emile Legrand) of the 14th century.

§ About 492 A.D., as commonly stated.

bic synonym and often by others, and with other Greek synonyms in a 15th century hand. Dodoens * reproduced some of these figures; and in 1897 Wellmann reproduced one of Moly. Sprengel remarks that "the figures occasion little expectation of skill or art; but Swieten and Kollar entreated the empress Maria Theresa to have them reproduced in copper-plate. She assented and not a few were prepared. But from the more learned mind of Jacquin the work received arrest. The copper plates lie now in the second Bibl. Caesarea, unworthy to be published. All the figures are rude, many are made according to the imagination or the pleasure of the painter, and many are monstrous." See also Pritzel's Thesaurus, p. 335, for reference to Jacquin's gift of plates to Linnaeus and to Sibthorp, and destruction of the remainder. Pritzel speaks of these figures in C as "pulcherrima," and even Sprengel refers to the praises they had received. But considering the rudeness of plant figures already familiar to us from the 15th century, it would be surprising if these Dioscoridean figures were not rude. Their chief value undoubtedly lies in their part-expression of just what the ancient conception of the plant was; and that is reason enough for their publication. I would repeat Wellmann's dictum of 1897, "The illustrations of Codex C ought to be published."

——N, Codex Neapolitanus, now also at Vienna, more mutilated than the preceding; and "supposed to be more ancient," says Pulteney (1:41). Its age was stated by Sprengel as "equal to C or earlier," by Pritzel placed in the 5th century, but by Wellmann in the 7th; is alphabetical; "generally agrees with C, but has many better readings, better written synonyms, and more Roman synonyms," *Sprengel*; has 409 painted figures, 2 or even 4 on a page. Both C and N are evidently copied from the same original text, and from one with the same figures, which must have dated

* Dodoens, in his *Pemptades*, of 1583, copied 10 of these figures, poorly executed, and causing those of Codex C to fall, as Pulteney suggests, into undeserved disparagement. Some were reproduced by Gerarde, 1597, and one by Parkinson. Pulteney lists them as follows, using the 1583 edition: Coronopus, Dod. 179 (109), Gerarde 1190. Arction, Dod. 849 (149), Park. 1374. Hyssopus, Dod. 286 (288). Hippophaës, Dod. 373 (377). Aconitum Lycoctonum, Dod. 437 (439), Ger. 572. Stoebe, Dod 123. (123), Ger. 731. Lotus sylvestris Dod. 562 (572). Lotus Aegyptiaca, Dod. 563 (573). Tithymalus dendroides, Dod. 368 (372), Ger. 501. I introduce in parenthesis in the preceding list, the pages on which I find these figures in my copy of the 1616 edition of the *Pemptades*. One other also occurs in this, *Sphaeritis*, p. 126.

after 180 A. D., or later than Galen, *Wellmann*. Haller remarks of its figures that "they are sufficiently exact to enable the botanical traveller with such drawings in his hands, to distinguish the plants of Dioscorides in their native places of growth."

——Codex Parisinus, no. 2179, of 9th century; uncial; 402 figures, to the end of book IV.; praised by Salmasius; pronounced "best" by Wellmann; not greatly esteemed by Sprengel; contains the text from II., c. 204 to V., c. 124; Arabic and Latin plant names are added by three distinct hands; contains also Coptic plant names according to Sprengel, who inferred that the MS. was written in Egypt.

——Codex Athos, of 12th century; 404 figures, 5 to 12 cm. high, with name beneath, standing in the text; at the next description but one after Aster Atticus, that of the Viola odorata, ἴων στεφανωτῶν, a figure showing two ladies with vases is introduced; as if copied from a Greek source which connected the violet with its appreciation among Grecian women.

——Codex Marcianus, XCII., of 13th century. Was this one of the "exemplaria codices" used by Anguillara and Manardus, presumably from the Marcian library of Venice?

——Codex Parisinus, no. 2180, 15th century; it states that it was written by Georgius Midiates about 1481; with the figures except in some cases where the blank spaces left for them remained unused.

——Codex Parisinus, no. 2183, 15th century; figures from bk. 2, c. 107 to end of bk. 4.

——Codex Bonn, no. 3632, 16th century; illustrations 2–6 on a page, some of the same as in C.

In the Vatican 6 other codices are preserved. Matthioli consulted MSS. from Constantinople, said to have included some now unknown, additional to the Codex C at Vienna.

There are two codices of Dioscorides in the Bodleian library (Pulteney, 1: 57), 3637, *De Herbarum Natura et Virtutibus, cum iconibus elegantibus;* and 840, an Arabic version of 5 books, "cum nominibus a Thoma Hyde adjectis."

A Latin translation of Dioscorides, used by Marcellus Vergilius was the Langobardic codex (Monacensis, 377): investigations upon this by Auracher were continued after his death, by Hoffmann and

Stadler. Figures extend through the first book at least; that on Hydropiper, for example, has been much praised.

Another very ancient Latin translation was extant in the time of Cassiodorus, or perhaps 540 A. D., but is now lost; he cites it as "Herbarium Dioscoridis"; it contained colored figures. Cassiodorus remarks of Dioscorides himself that "he described and painted the plants of the field with wonderful accuracy"; which may not refer strictly to the original Greek author, but to the Latin edition bearing his name.

A very ancient Syriac translation of Dioscorides must also have repeated the figures, for they were retained in the compend prepared from it in the thirteenth century by Gregorius Barhebræus under the title "Liber Dioscoridis cum figura herbarum et earundem delectu et virtute," etc. (*Meyer*, 3: 136).

One of the early Arabic translations, made in 948–949 under the Moorish caliph Abd Arrahman III., was also filled with notable pictures of the plants (*Meyer*, 3: 137). See *infra*, 185.

Probably a figure of Aster Atticus occurred in each of the preceding and in many more.

Figures from some codex of Dioscorides prove also to have been used and copied by Bartolomeo Mino da Siena about 1330 and by Rinius about 1418, before the invention of printing. See *infra*, under *Circa instans*.

X. PLINY

Pliny the elder,* the great Roman naturalist, who lost his life while observing the eruption which destroyed Pompeii, 79 A. D., had but just completed his Natural History, † a work which his

* Caius Plinius Secundus, born at Verona or at Como, 23 A. D., removed to Rome by 39 A. D., travelled when 21 in Africa, Egypt and Greece, was commander next year of a troop of cavalry in Germany, was made procurator in Spain by Nero, returned to Rome A. D. 70 and adopted his nephew Pliny the younger (author of the Letters), was made by Vespasian prefect of the Roman fleet; when sailing to observe the eruption of 79 A. D. he turned aside to rescue sailors near Vesuvius, and lost his life, two years after finishing his last work, his only work extant, the Natural History, in 37 books dedicated to Titus, and composed largely of excerpts from Greek authors. Hardouin catalogs over 400 authors cited in it. Books 12–27 are devoted to plants.

† *Historiae naturalis libri* 37; first printed at Venice, 1469, by Spina, only 100 copies, and long excessively rare; with notes (of Sigismund Gelenius), Basle, 1539; with notes by Hardouin, and with variant readings from 8 manuscripts, Paris, 1723;

nephew terms "not less varied than nature herself." In that work the name *Aster* is used for the Samian earth, *asterion* for a star-spotted lizard (like Nicander's usage), and *astericum* as a synonym for *perdicium*, *i. e.*, the plant wall-pellitory, Parietaria; see p. 80. He makes two short references to Aster Atticus, very brief and scanty compared with Dioscorides; adding however one new synonym and one new medical use, that for sciatica, really only a superstitious use, serving merely as magical amulet. Those who would reject part of the Dioscoridean description because too superstitious and because not found in Pliny, should also take exception to Pliny's citation of virtue possessed by aster only when plucked by the left hand, and other superstitions.

Pliny's reference under the name Aster.—Pliny does not in either place call the plant by the Dioscoridean binomial name of Aster Atticus, but terms it simply Aster, and Inguinaria. His first reference * is in a chapter † where he considers in a loosely alphabetical arrangement, properties of a number of unrelated plants, beginning with A, in the midst of which is his *De ... astere vel bubonio*, as follows:

"Aster ab aliquibus bubonion appellatus, quoniam inguinum praesentaneum remedium est. Cauliculus foliis oblongis duobus aut tribus, in cacumine capitula stellae modo radiata. Bibitur et adversus serpentes. Sed inguinum medicinam, sinistra manu decerpi jubent, et juxta cinctus alligari. Prodest et coxendicis ‡ dolori ad alligata." In English (Riley's rendering),§

critical edition, Sillig, 1851–2. First translation (into Italian, by Cristoforo Landino), Ven. 1476; first into English, by Philemon Holland, London, 1601; second, from which I quote, Riley's continuation of Bostock's translation, Lon. 1855–7, edn. Bohn. First commentaries separately published, those of Hermolaus Barbarus, Rome, 1492–3, and Leonicenus, Ferrara, 1492; that of Salmasius was of 1629, at Paris; that of Fée, Paris, 1833. Two partial MSS. of Pliny are in England, one of 18 books, Bodl. 289, and one in the Norfolk collection, 2996; besides an epitome, 459, in Trinity College, Cambridge.

* Bk. 27, c. 5;—p. 482 of the edn. Froben (Basle, 1555).

† De aparine, et arctio, et asplenio, et asclepiade, et astere vel bubonio, et ascyro vel ascyroides, et aphace, et de alcibio, et alectoropho.

‡ Lit., "for pain in the region of the hips."

§ Pliny, edn. Bohn, 5: 229. Riley here notes Fée's agreement with Jussieu and Sprengel, that *Aster Amellus* L. is here meant. Desfontaines had suggested that Pliny intended "the *Inula bubonium*:" see p. 69.

"THE ASTER OR BUBONION. THREE REMEDIES

"The Aster is called bubonium by some, from the circumstance of its being a sovereign remedy for diseases of the groin. It has a diminutive stem with oblong leaves, two or three in number, and at the summit it is surmounted by small radiated heads like stars. This plant is taken also in drink, as an antidote to the venom of serpents; but if required for the cure of inguinal complaints, it is recommended that it should be gathered with the left hand and attached to the body near the girdle. It is of great service also worn as an amulet for sciatica."

One feature in Pliny's description looks like that of a man who had actually seen the plant; his remark "it has a diminutive stem with oblong leaves, two or three in number." As the plant grew in northern Italy, where Pliny was born, it may have been familiar to his childhood. He does not seem to know the name Amellus for it, however, which might be due to a failure of the name Amellus to extend in popular use beyond the river Mella, with which Vergil connected it; or Pliny may have forgotten the rural name, being now almost forty years removed from the regions of its growth about Verona, and having been accustomed to read its descriptions since in Greek authors who called it Aster, as Crateuas and Dioscorides, and probably many others lost to us.

Pliny's previous reference, as Inguinaria.—The other allusion to Aster made by Pliny is by the name of Inguinaria, and among plants used for tumors and for hemorrhoids. For these purposes Pliny has just mentioned plantago, cinquefoil, cyclamen-root, blue anagallis, cotyledon and pennyroyal; then follows what he has to say of Inguinaria; then the use of panaces (*Laserpitium Chironium* L.), plantago, and a number of other plants, all used for tumors, including verbascum, hoarhound, etc. The remarks concerning pennyroyal and inguinaria are so similar that I quote them both:

"De pulegio et argemone.

"Alii adjiciunt et pulegium; quod jejunus qui legerit, si postse alliget, inguinis dolores prohibit, aut sedat coeptos.

"Inguinaria, (quam quidam argemonen vocant) passim in vepribus nascens, ut profit inguinibus, in manu tantum habendum est."

* Pliny, bk. 26, c. 59; (and edn. Bohn, 5: 188.)

Riley translates this as follows :

"SECTION 9

"Some persons add pennyroyal to the number of these plants ; gathered fasting, they say, and attached to the hinder part of the body, it will be an effectual preservative against all pains in the groin, and will allay them in cases where they already exist.

"CHAPTER 59, INGUINALIS OR ARGEMO

"Inguinalis again (the 'Groin-plant'; probably the same as the Bubonion of bk. 27, c. 19), or as some persons call it, 'argemo,' a plant commonly found growing in bushes and thickets, needs only to be held in the hand to be productive of beneficial effects upon the groin."

The name Inguinalis is given among the Dioscoridean synonyms as the Roman name for Aster Atticus. It seems to have been more generally used than Inguinaria, Pliny's form for it ; in late mediaeval Latin it sometimes appeared as Unguinalis, Unguinialis, or Ynguinialis.

Some, however, as Billerbeck, 143, without apparent reason, assume Inguinaria as distinct from Inguinalis, and identify it with *Herniaria hirsuta* L.

Pliny's Aster-synonym Argemon.

The name argemon, which appears here as a Plinian synonym for Aster, occurs once again in Pliny, and, as before, not as a current name in received usage, but as a synonym, used on this second occasion for his *Lappa canaria*,* a plant with a resemblance to Aster in its medical reputation, being used as an application to ulcerating tumors. An atmosphere of magic and of ritual hangs about argemon. Its root was reputed to be medicinal to swine ; and no less a personage than the goddess Minerva was said to have discovered that quality in it. It bore an antipathy to iron. The person who would use it must not dig it up with an iron mattock† or any similar implement. He must, as he takes it up, repeat the magic formula, "This is the plant Argemon, which

* Beginning "Nam quae canaria appellatur lappa," etc.

† Effossa sine ferro, Pliny, 24 ; c. 19.

Minerva discovered, which she found a remedy for swine, for all such as should taste of it." *

How much of the practice of this ritual passed on with the name to Inguinaria, or Aster, we can only surmise. Probably there had come to the Romans some dim rumors of a plant that the Greeks had called argemon, and had invested with tumor-healing magic. Thereupon certain Romans believed they had found this argemon in their own tumor-healing Inguinaria or Aster.

To summarize: Aster seems by some Greek writers to have been called Argemon because used for argema or the white ulcer of the eye. Aster was also in repute as a general remedy for ulcers, tumors, and inflammations whether of the eye or elsewhere. Reputation for these properties seems to have passed on to the plant known to Cratevas and Dioscorides as Argemone, ἀργεμώνη, *Adonis aestivalis* L. † and to the three plants known to Pliny as Argemonia, and now as παπαρούνα, *Anemone coronaria* L., *Adonis aestivalis* L., and *Papaver Rhoeas* L. ‡ This reputation for like properties with Aster was perhaps in part original to the plants called Argemonia but also in part strengthened by the early confusion of the similar names Argemone (= Argemonia) and Argemon (= Aster).

Others among Pliny's authorities had evidently lost the identity of Minerva's plant Argemon and thinking its name (meaning "white § thing") might be derived from the root, had applied it to the *Lappa canaria* of Pliny, an uncertain plant with a large white root variously identified as *Athamanta Libanotis* L., *Caucalis latifolia* ‖ L. and *Arctium tomentosum* ¶ Schk.

Others later confused Argemone and Argemonia with Agri-

* "Haec est herba argemon, quam Minerva reperit, suibus remedium, qui de illa gustaverint," *Pliny*, bk. 24, c. 19, sec. 117.

† *Vide* Sibthorp's examination of the text and figure in codex C of Dioscorides at Vienna. This plant is now confused with the poppy or παπαρούνα in Greece; Sibthorp found it called ἀγριοπαπαρούνα in Zante.

‡ Billerbeck makes them "Anemone pratensis, Adonis aestivalis, and Papaver somniferum."

§ Ἀργός, white, Ἀργεννός in Aeolic and Doric.

‖ Because Dioscorides (2, 169), described his Caucalis (the modern Greek καυκαλίδα) as having *white* flowers, *candida umbella odorata*.

¶ Because of the white root and supposed inclusion with *Arctium Lappa* under the Roman name Lappa. See Dioscorides' chapter on Arctium, ἄρκτιον, (4, 106,); Pliny's chapter on Arctium is a direct translation of this.

monia and its partial synonym Eupatorium, the εὐπατώριον of Dioscorides, claimed to represent *Agrimonia Eupatoria* L., and *Eupatorium cannabinum* L.

Finally Linnaeus transferred the name Argemone to his American papaveraceous genus, which had no claim to inherit the name except distant and late-discovered relationship.

To Argemon in the sense of Aster may be attributed:

1. The synonym Anthemis, *D*, 2, 208, interpolation, under Argemone.

2. The synonym Inguinaria, *Pliny* ("Inguinaria quam quidam argemonen vocant") though some, as Billerbeck, deem this to be *Herniaria hirsuta* L.

3. The story told by Pliny of Minerva's discovery of "that plant Argemon," with its use for tumors in man or for ailments of swine, when dug without iron, and with the formula, "Haec est herba Argemon, quam Minerva reperit, suibus remedium, qui de illa gustaverint."

4. The uses for argema and for films in the eye also attributed to Argemone, *D*.

5. The uses for tumors and inflammations, though in part perhaps original to Argemonia.

To Argemonia and Argemone may be attributed Dioscorides' description, and that of Pliny; Cratevas' use with nitre rubbed on dry before the bath; and in general, the properties given by Dioscorides under the name *Argemone*, by his interpolator under the name *Argemone altera*, and by Pliny under the name *Argemonia*; though strengthened by influence of the reputation for similar properties enjoyed by Argemon or Aster.

Pliny's chief contributions to the knowledge of Aster consist in his statement of the few leaves, of the use for sciatica, of the Roman names inguinaria and argemon, with the inferences implied and considered above, together with the opportunity afforded by his description for comparisons with that of Dioscorides.

XI. PAUSANIAS

Pausanias, the Greek geographer, writing the ten books of his *Periegesis* or Itinerary of Greece, about 175 A. D., narrates how after he had travelled about Attica and Megara, while pursuing his way

from Corinth to Argos he came to a river Asterion, where grew in abundance a plant of the same name, which was sacred to Hera and was habitually wreathed round her altars.

Since the herb Asterion here mentioned may be the Aster, I give the context sufficiently to show the connection; using Frazer's translation.

"On the way from Corinth to Argos ... having ascended to the pass of the Tretus and resumed the road to Argos, we have on the left the ruins of Mycenae. That Perseus was the founder of Mycenae is known to every Greek ... Another legend is that the first man born in this country was Phoroneus, and that his father Inachus was not a man but the * river of that name. Inachus, so runs the legend, arbitrated in the dispute between Poseidon and Hera for the possession of the country, and he was assisted by Cephisus and Asterion; † and because they decided that the country belonged to Hera, Poseidon made their waters to disappear. Therefore neither the Inachus nor any of the other rivers has any water, except after rain. ‡

"To § the left of Mycenae at the distance of 15 furlongs is the Heraeum. Beside the road flows a water which is called the river Eleutherius; *i. e.*, the Water-of-freedom; the women who minister at the sanctuary employ it for purifications and for the secret sacrifices. The sanctuary itself is on the lower slope of the mountain Euboea. For they named this mountain Euboea, saying that the river Asterion had three daughters, Euboea, Prosymna, and Acraea, and that they were nurses of Hera. The mountain opposite the Heraeum is called after Acraea; the ground about the sanctuary is called after Euboea; and the district below the Heraeum is called Prosymna.

"The Asterion flowing above the Heraeum falls into a gully

* The three chief rivers of the Argive plain were those meant by Pausanias (Frazer) in his names Inachus, Cephisus, and Asterion, although some identify Pausanias' Asterion with the brook Glykia, a small torrent behind the Heraeum.

† Asterion as a river-name occurs only in this context, I think, and in a fragment of Callimachus. As a personal name it was frequent; see p. 60. Numerous occurrences of Asterion as a personal name seem to run into variants as Ἀστερίων, Ἀστέριον, Ἀστέριος, without essential difference.

‡ Pausanias, bk. 2, c. 15.

§ Pausanias, bk. 2, c. 17.

and disappears. On * its banks grows a plant which they also name Asterion; they offer the plant to Hera and twine its leaves into wreaths for her."

That this blossom, the Asterion, was the same as Aster Atticus has been asserted, and has been denied. The name Asterion occurs as one of the Dioscoridean synonyms for Aster Atticus, and it is by the name Asterion that Apuleius Platonicus describes the Aster Atticus, about 400 A. D.

Two other plants sometimes called Asterion by the Greeks from their parted leaves, are out of consideration, because unfit for decorative use; they are *Cannabis sativa*, the hemp, and *Heracleum Sphondylium*, a coarse, ill-smelling umbellifer.

Ruellius † in 1536, summarizing the knowledge of his time about Aster Atticus, refers to Pausanias' Asterion but remarks that he has not been able to prove that they were identical, saying:

"Qualis autem Pausanias sit herba, quae in Mycenensi agro ad Junonis fanum, asterion vocatur, a flumine terram illam rigante, quia in ripis nascitur, cuius folia Junoni sacra in coronas nectunt accolae, non comperi."

Schliemann seems to have assumed that Pausanias' Asterion was the same as that of Dioscorides, for speaking of his journey to Mycenae, he says ‡ of the stream by his path: "The water of the Asterion fed the Asterion plant (a kind of aster), sacred to Hera, from the leaves of which wreaths and festoons were made for the goddess."

Frazer, the latest translator and editor of Pausanias, is no further advanced in 1898 than Ruellius in 1537, toward identifying this Asterion, saying: § "What the plant was, we do not know. Schliemann indeed calls it a kind of aster, but this may be a mere inference from the name."

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* φύεται δὲ αὐτοῦ ποὰ πρὸς ὄχθαις· Ἀστερίωνα ὀνομάζουσι καὶ τὴν ποίαν ταύτην· ἣν Ἥρᾳ καὶ ἀπὸ τούτου φέρουσι, καὶ ἀπὸ τῶν φύλλων αὐτῆς στεφάνους πλέκουσιν. Translated by Shilleto (Pausanias, edn. Bohn, Lon., 1886, 1: 122) "And the flower called Asterion grows on its banks; they carry this flower to Hera and plait her crowns of its leaves."

† Ruellius, *De natura stirpium*, Basle, edn. Froben, 1537, p. 633.

‡ *Mycenae*, p. 25.

§ J. G. Frazer's *Pausanias*, 4: 118. Lon., 1898.

Siebel, editor of Pausanias in 1822, is as indefinite as p sible, merely indexing the reference as to a certain "Aster herba."

Against the identity of Pausanias' Asterion with the Aste of Dioscorides, and, therefore, against its identity with Aster ticus, the following reasons may be urged:

1. The names, although seeming the same in English letter are not quite the same in Greek, the form of Pausanias being Ἀ ρίων, Dioscorides' Ἀστέριον. This difference may be nullified observing that if the plant usually called ἀστέριον so abounded al the river independently named Ἀστερίων, it was natural that plant-name should become assimilated to that of the river; c may not have been actually so assimilated, but may have b before unknown to Pausanias and though given to him in the fc ἀστέριον it may have been understood by him to be meant for same form exactly as the river-name.

2. The chief objection to the identity of the two plants cal Asterion seems to be this: some might infer from Pausanias t his Asterion was a plant with long leafy stems more suitable weave into wreaths than could be said of the short stems of A Atticus. I do not regard this objection as carrying weight, for have references by Nicander and Vergil to the weaving from A Atticus of garlands and wreaths for altars and grave-columns.

3. Some may object to the identity of the two Asteria t Eustathius * in his valued commentary on Homer has been unc stood to identify † Pausanias' plant with the short-stemmed sacred verbena, the Greek περιστερεών, sometimes called ἁπτερε especially latterly, but for which περιστερεών, plant of the do was the common Greek name from Cratevas onward.

Eustathius, commenting on the command of Ulysses that palace at Ithaca be purified with incense after the suitors for Pe lope were slain, remarks as follows: ‡

* Eustathius, a Greek born in Constantinople, bishop of Thessalonica, who 1198 A. D., whose commentary is "of incalculable value to us, as nearly all the w from which he made his extracts are lost."

† Comm. on Odyssey, edn. Weigel, Leipsic, 1825-6; based chiefly on the Ro text with slight typographical corrections; p. 291.

‡ Eustathius' Comm. on Odyssey, 22, 481; chapter 1935, line 2; page 291, Weigel, Leipsic, 1825-6.

"It is narrated that not only though incense were purifications made and performed, but also a certain plant was most useful for this. Aristereon certainly, the plant according to Pausanias, was suitable for use in purification." *

Frazer, commenting on Pausanias, takes it for granted that Eustathius' reference above quoted refers to the Asterion and to its use in the temple of Hera as quoted in Pausanias 2, 17. But Eustathius does not say that Pausanias 2, 17 was the passage he meant, and there is too much difference between Aristereon and Asterion to be lightly mistaken for each other; besides, Paus. 2, 17 does not mention any plant as used for purifications; it is for decoration and as an offering that his Asterion is used.

Therefore Eustathius' supposed identification of Asterion with Verbena is not an identification of Asterion at all, but merely a remark about another plant, Aristereon,† already well known to be the same as Peristereon ‡ or verbena.

In favor of the identification of Pausanias' Asterion with Dioscorides' Asterion, *i. e.*, Aster Atticus, we may say the burden of proof rests by right with those who would prove them different; and we add the following considerations:

4. Pausanias says that his Asterion was offered to the divinity of the place, Hera; and that wreaths for her were made from it. Similarly Nicander and Vergil speak of offering Aster to the gods, and making garlands for them from it.

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* ἀστερίου γοῦν, οὗτον κατὰ Παυσανίαν, ἐπιτήδειον εἰς καθαρμόν. So reads Weigel, saying that he bases his edition on the excellent Roman text, with slight typographical corrections.

† Aristereon literally is "the left-hand plant," "the sinister plant"; see p. 158; mentioned also in the Orphica Argonautica, an epic of nearly 1,400 lines (edn. Hermann; 916). Also mentioned by Aelian, about 150 A. D., bk. I., c. 35 of his *De animalium natura*, περὶ ζώων ἰδιότητος, in 17 books, a miscellany on the peculiarities of animals; edited by Gronovius, 1744. Some (J. Bauhin's *Historia plantarum*, 3: 442; explained ἀριστερεῶν as "the strongly-consolidating plant," from στερέω, *ibid.*, and an intensive prelix ἀρι, from a reputation for healing wounds; making the name equivalent to Solidago. It may be however that Aristereon is really only a corrupted form of the word Peristereon.

‡ Peristereon, literally "the plant of the doves," "dove-dwelling," name of a dove cote; and name of this plant, because, says Dioscorides, 4, 60, "doves seem to delight to linger about it." Used like Aster for ulcers and in labor. Unlike that and perhaps all other plants, this was a sprinkling herb in religious ceremonial, and used, says Dioscorides, in purifications, and called sacred herb, ἱερα-βοτανή.

5. It seems probable that the plant-name Asterion antedated that of the river or at least was independent of it in origin. Plant-names derived from individual rivers are yet to be proven to occur in popular nomenclature, however common they may be in that of science. Probably the plant-name was really ἀστέριον (= Aster Atticus), and became assimilated to that of the river, ἀστερίων.

6. The locality Pausanias describes for it, the rough river valley among the hills, agrees with the kind of locality natural for Aster Atticus.

7. The not distant neighborhood of the locality to Megara agrees with the information given me by a Greek formerly resident in Attica, who recalls seeing Aster Atticus growing wild toward Megara perhaps ten years ago.

In brief, I would say that Pausanias' Asterion *may* probably be the same with that of Dioscorides, though we cannot say that it *must* be, without further evidence. I do not find that any one has given much account of the actual flowers of that river valley since Pausanias' time. Subsequent travellers who visited Mycenae previous to Schliemann were Clarke and Gell, who give no evidence on this subject, and Dodwell,* whose visit to Mycenae was on Dec. 8th, and whose remarks on flowers are made chiefly while in other parts of Greece, as on the asphodel, the agnus castus, scilla, acanthus, the laurel-rose or rhododaphne of the banks of the Ilissus, and the "many-colored anemones in 20 different tints" over the Thriasian plain. Mahaffy † visited the vale of Argos "in spring, in the time of the growing corn, of scarlet anemone and purple cistus"; and was again at Mycenae in summer, when stubble already covered the fields, and "down at the river-bed great oleanders [*i. e.*, the rhododaphne] were spreading their sheets of bloom‡"; but seems to have been too early for the Aster Atticus, if indeed it was there.

* Dodwell's Tour through Greece, 1819.

† Mahaffy's Rambles and Studies in Greece, Lon., 1878.

‡ Mahaffy's Rambles, etc., p. 404. Cf. p. 378, where he is journeying from Mycenae to Argos, and writes that "along the river Inachus. ... We could see and smell great wild fields of rose-red oleander, blooming along the river banks, very like the rhododendron of our demesnes."

XII. GALEN

Galen, the great Greek physician, who died at seventy years of age, about 200 A. D., mentions Aster Atticus twice, as follows, in his alphabetical treatment of remedies ; using Kuhn's Latin translation :

[69. De Astere Attico.] Aster Atticus, alii Bubonium vocant, non ob id tantum quod illitum, sed etiam quod suspensum bubones sanare credatur ; habet quiddam etiam digerens, habet vero non minime et refrigerans quiddam ac reprimens, ut mixtae sit facultatis uti rosa, verum id non astringit.*

[11. De Bubonio.] Bubonium aut aster Atticus nuncupatum est ita, quia creditum est bubones sanare, tum illitum tum inguini alligatum. Est autem mediocriter digerantis facultatis, quia videlicet et modice calidum est, nec vehementer, nec ita desiccat ut contendat, maxime quam etiamnum molle ac recens fuerit.†

It will be observed that Galen ‡ adds nothing to what Dioscorides had said except remarks as to "the discutient properties of the plant, non-astringent, but of mixed nature, as in the rose."

For his numerous compound remedies which he termed *aster*, see *supra*, p. 88.

XIII. ORIBASIUS

The next Greek writer whom we can cite for Aster was Oribasius,§ final summarizer of the medical knowledge || of the pagan

* Galen, edn. Kuhn, 1833, in *Med. Gr. opera omnia*, 11 : 841 ; being Galen's chapter between his *De Astragalo* and his *De Astaphide uva*.

† Galen, do., 11: 852 ; being the chapter between his *De bulbo vomitorio* and *De duplexo*.

‡ Galen, the son of Nicon, an architect of Pergamus, was physician for a time to the emperor Marcus Aurelius; passed his old age in his native Pergamus; had travelled over Asia Minor, Egypt, Greece and Italy; journeyed to Palestine to investigate a balsam which was being adulterated (Antidotarum, i, 424, 435); remarks that he was not satisfied to see only the imperial gardens in Crete, but that the physician should journey that he might see officinal plants in their native places and collect them and really distinguish them (Antidot., i, 428).

§ Oribasius Pergamenos, Ὀρειβάσιος, born at Pergamos in Mysia about 325 A. D., journeyed from Alexandria in 355 to Athens where his friend Julian, nephew of Constantine the Great and afterward emperor, was that year engaged in the study of Greek literature; accompanied Julian when emperor to Gaul and to Persia ; banished by his successors, he was finally recalled in triumph, and was living in comfort 395 A. D., having married, says his friend and biographer (Eunapius), "a lady of wealth and rank, whom he had a son of kindred genius to his own."

|| Oribasius' works include, (1) Epitome of Galen, written at the behest of Julian,

world, court-physician and confidant to the emperor Julian, to whom he dedicated the seventy books of his Collectanea * (of perhaps 362 A. D.), and on whom he was in attendance when Julian met his death in battle, 363 A. D. Oribasius in his long friendship for Julian and for the sophist, Eunapius, linked together the three master-spirits whose end marked the passing of paganism.

Oribasius' description of Aster Atticus is an adoption of that of Dioscorides, under the name of "Aster Atticus or Bubonion," and is valuable chiefly as throwing light on the true text of that most important description. The name *Bubonion*, for example, was stricken out from the received text of Dioscorides by Saracenus in 1598, as part of a later interpolation; on what good ground does not appear, as the name Bubonion was cited for the plant by Pliny and was doubtless current long before Dioscorides wrote, its form indicating a long period of established medical repute to occasion the development of the name,—"the Groin-plant," as it has been rendered. We note that Oribasius had been also

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on or before April, 361 (now lost). (2) Collectanea, or Collecta Medicinalia, or Hebdomecontabiblos (the seventy books), his Συναγωγαὶ Ἰατρικαί, a compend of the medical writings of antiquity, in 70 books written under the auspices of Julian, 361-363 A. D. (3) His Synopsis, or σύνοψις, books abridged from the preceding at the desire of his son Eustathius; about 393 A. D.; printed only in Rasarius' Latin translation. (4) His Syntomie or Euporista or De facile Parabilibus, in 4 books, forming a "Family Physician," dedicated to Eunapius, his intimate friend; printed only in Rasarius' Latin translation.

* Of this great encyclopaedia of medical knowledge, the Collectanea, more than half is lost and the remainder in some uncertainty; books I.-X, XIV, XV, and a fragment of book XVI were published in the original Greek and in French translation by Bussemaker and Daremberg, Paris, 2 vols., 1851, 1854; books 46, 47, and fragments of books 48 and 49 were published in Greek and Latin from a Florentine MS. by Cocchi, Florence, 1754; and fragments from books 44 to 50, by Cardinal Maï, from a Vatican MS., Rome, 1831, Books XI., XII., XIII., being a transcript of Dioscorides, were unfortunately omitted from the Paris edition.

The standard Latin translation of Oribasius, published at Basle, 1557, was made at Venice shortly before by Rasarius from two MSS., one that of the Venetian patrician Matthaeus Dandolo, the other that of one Nicolaus Sammichelius, "medicus Novocomensis"; it includes 30 books, the Synopsis, the Euporista, and books I-XV, XXIV and XXV, of the Collectanea. One of its MSS. came later, says Meyer, 2: 269, to Moscow, where Mathaei printed from it the Greek text of books I.-XV. with the Latin translation, 1808, but without textual comparisons.

The earliest published portion of Oribasius was that printed by Schott in 1533 at Strasburg, by title "Oribasii medici de simplicibus, Libri quinque," which consisted also of portions from Apuleius and Dioscorides and from some unknown Greek physician.

preceded in his use of the name Bubonion by Galen, his medical exemplar.

Unfortunately, the Greek original of this description of Aster is not yet properly accessible, being contained in the omitted part of Oribasius' Collectanea,—printed by Mathaei; but omitted by the editors of the critical edition of Paris, 1851–4, because merely a transcription of Dioscorides—but in behalf of which within the next year, Meyer (2 : 268) was uttering a strong plea. Comparisons with Dioscorides have long been made however by means of Rasarius' Latin translation of about 1554, and in many places, says Sprengel, this suggests very valuable readings.

LATER ROMAN WRITERS

XIV. SAMMONICUS

Some confusion has arisen at times between Aster Atticus and Chelidonium. There was a widespread belief at the beginning of the Renaissance that the two were identical, *Chelidonium minor* * being the plant then so identified. Matthioli was summoning arguments against this belief in 1568, and Bodaeus ỳ Stapel was still doing so in 1646. Similarity of reputed properties in *Chelidonium majus* and in Aster seems to have been the source of the confusion.†

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* The lesser Celandine, *Ficaria ranunculoides*.

† Dioscorides had recommended Chelidonium for the King's Evil and for clearing films from the eyes; as Aster Atticus was also recommended.

Our *Chelidonium majus* was to the Greeks the plant of the swallow, swallow-wort; they called it Chelidonion or Chelidonia, and Theophrastus mentions its blooming with the return of the swallow, *χελιδών*, in spring. They said that the young of the swallow at breaking the shell, have less perfect eyes than other birds, or have a film over them, or in the words of Aristotle, the young of the swallow are blind when hatched. Dioscorides and Pliny both quote the belief that the parent birds remove this blindness from the eyes of their young by the use of the herb Chelidonium. Aelian repeats the story, Anim. Nat., bk. iii, c. 25. Celsus explains (Comm., book vi) the process by which a stroke should liberate the eye; all set forth again at length by Ruellius in 1536.

The reputation of the Celandine for removing films from the bird's eye, passed readily to the human eye; "a sovereign remedy for films upon the eyes," Pliny calls the plant, bk. 25, c. 50. For this purpose the Greek practice was to use the expressed juice of the flowers, mixed with Attic honey, brought to boil in a brazen urn over coals "in aeneo vase cum melle Attico leniter cinere ferventi."

Chelidonia, says Dioscorides, was also a remedy for the king's evil; here meaning primarily scrofula but often understood as epilepsy.

The real confusion shows first in Serenus Sammonicus, Rom medical poet of about 210 A. D. who in writing of his Chelido attributes to it not only the power of relieving films and also t king's evil, but other properties still more characteristic of Ast as "the power of healing ulcers or other troubles of the groin;" which purpose his verses * recommend its use together w yarrow, saying

> Herba chelidonia fertur cum melle mederi,
> Herbaque cum seuo foliis de mille vocata. †

It is doubtful how soon another Latin medical work perpe ated these ideas; the verses of Macer Floridus and the school Salerno repeat Pliny but not Sammonicus; perhaps the first ec of Sammonicus is in Arnald de Villanova, ‡ about 1310 A. who prescribed Chelidonia with anise in white wine § for ulcers well as for the king's evil.

XV. APICIUS COELIUS

Apicius Coelius, perhaps 250 A. D., was author of the m ancient Latin cookbook, *De Opsoniis*, first mentioned by Enoch culanus, 1454, first printed 1498 at Milan, edited by Lister, A sterdam, 1709, by Bernhold, 1787. His editor, Lister, from certa comparisons of his use of the word *Garum* for a spice (the *Ga* of the Geoponica), deems him a contemporary of the Emperor V lerian, 253 A. D., and a native of the Roman province of Afri

* Q. Serenus Sammonicus (*Samonicus* of some MSS.), a man of taste and cul founder of a magnificent library of 62,000 volumes, the friend and literary mentor of (son of Septimius Severus and, with his brother Caracalla, joint ruler of Rome, 211— Geta is said to have studied Sammonicus' compositions "with great enjoyment." Caracalla succeeded, after many failures, in assassinating his brother, the death o monicus was at once ordered also and the poet was murdered while at his supper, 212. His son of the same name was preceptor to the younger Gordian (emperor of who fell in battle A. D. 237) and bequeathed to this Gordian the library which his had accumulated.

† Q. Serenus Sammonicus, Liber Medicinalis, lines 693-4 (and see line 7 Chelidonia recommended for "igni sacro") in Bährens's Poetae Latini Minores, 3 This poem is of 1115 hexameters, mentioning 120 plants, "with a considerable a of information on natural history and the healing art mixed up with a number of p superstitions, and in almost prosaic language."

‡ Sylvius' Schola Salernitana (with Exegesis by Arnald de Villanova), 306.

§ Macer had prescribed it similarly with anise-root in white wine, but for ja not for ulcers.

The plants mentioned by Apicius were reviewed by Dierbach, 1831, in his Flora Apiciana, published at Heidelberg and Leipsic. Among these plants are the following:

Viola.—Apicius 1, 4 (2); an example of the latitude characteristic of the Roman use of this name (see p. 143, under Dioscorides, where it is confused with Aster Atticus); Dierbach, 83, interprets it here as *Viola odorata* L., Meyer (2: 248) as *Matthiola incana* or *Cheiranthus Cheiri* or altogether doubtful. Some of Apicius' other plant names are equally uncertain, as his *Ligusticum*; is *Praecoquum*, perhaps the peach or apricot? his *Corona bubula*, perhaps rue; his *Acrilactuca*, perhaps *Lactuca Scariola* or *virosa*, Meyer.

Helenium, Lactuca, Intubum, Cnicus (safflower), Carduus Cynara Scolymus), Absinthium, Absinthium Ponticum, Pyrethrum Artemisia Dracunculus), are mentioned by Apicius, among the Compositae.

XVI. THEODORUS PRISCIANUS

Theodorus Priscianus, Roman physician of about 380 A. D., author of an "*Antidotarius*," and of "*De simplici medicina*," etc., was cited in the 6th century by Alexander Trallianus and by Aëtios, but his writings remained for the next thousand years otherwise unknown. They were finally made known, in 1532, by Gelenius and Count Neuenar (Meyer, 2: 286), the latter printing them, 1544, and ascribing them to one Octavius Horatianus.

Theodorus Priscianus is one of the few ancient authorities for the name Pulicaria, now used as a genus including *Aster dysentericus* of Scopoli, etc.

Pulicaria first occurs, Dioscorides, 4, 70, as a Roman name for his Psyllion, *Plantago Psyllium* L., the ψυλλόχορτον of modern Greece; all of its names being due to a reputation for exorcising fleas.

Pulicaria in Theodorus Priscianus occurs twice, and probably in the preceding sense. The name does not occur elsewhere, fide Meyer's search,* until Theodorus Gaza used it to translate the Conyza of Theophrastus 6, 1, the fleabane of ancient and modern

*Exception should have been made for Isidorus, about 600 A. D., who enumerates "Psilios, quam Latini *herbam pulicarem* vocant."

Greece (now called, with that meaning, *ψυλλίστρια* and *κονύζα*), the *Erigeron viscosum* and *graveolens* of Linnaeus, both species now forming part of the genus Pulicaria of Gaertner.

Previous appearances of the latter Pulicaria in Latin had occurred under the name *Conyza minor*, as in the writings of Scribonius Largus,* perhaps 35 A. D.; in his *Compositiones*, 167; and afterward in Pliny.

XVII. MARCELLUS EMPIRICUS

One of the most interesting of ancient authors in connection with plant-names, the statesman of Gaul, Marcellus Empiricus,† (who may thus be distinguished from the more ancient physician, Marcellus Sidetes‡) was author, about 408 A. D., of a work *De Medicamentis*, the more remarkable as of value for both physician and botanist.

Meyer praises Marcellus' work § as the richest in plants since

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* *Scribonius Largus*, sometimes called Designatianus, celebrated as a Roman medical writer before the death of Tiberius, 38 A. D.; was court physician to Claudius and accompanied him to Britain A. D. 43. He prescribed for the notorious Messalina, Claudius' profligate empress, until her death, A. D. 48; his recipe for a tooth powder which he prepared for her is the 60th of the compositions in his chapter xi. Together with the physician, Vettius Valens, he had studied under the physicians Tryphon and Apuleius Celsus de Centuripa, and from them two of his published prescriptions are derived. His chief work, the "Compositiones medicamentorum," was edited at Paris by Ruel, 1529; at Padua by Rhodius, with a lexicon, 1655, and again by Bernhold (*ex libr.* Meyer) 1786. He is one of the chief authorities for the peculiarly Roman names *Urcedaris* for Parietaria, and *Sertula campana* for Melilotus. He mentions *Inula campana*, *Eryngium*, etc.

† Marcellus Empiricus, a native of Gaul, and some say of Bordeaux, in office as "Magister officiorum" at the court of the Roman emperor Theodosius, 379–395, and under Arcadius, his successor, 395–408. From humility and as if esteeming himself but an amateur, he disclaims being a physician, in a letter to his son, though that was then the honored calling of most authors whose writings mention plants. He mentions his fellow-citizens (of Gaul; of Bordeaux, *fide Torinus*) who were distinguished physicians, Siburius, Eutropius and Ausonius (the poet); is himself called "the epitome of all virtue" by Suidas; was of the Christian faith; urged his emperor to banish "all heretics" from Constantinople, his capital.

‡ Marcellus Sidetes, native of Side in Pamphylia, whose long medical poem, *Iatrica*, written perhaps about 140 A. D., 42 books of Greek hexameter verse, survives in two fragments only, the longer, on fishes, consisting of 101 lines.

§ Marcellus Empiricus "De Medicamentis," first printed in Aldus' series "Medicae artis principes," Venice, 1547, edited by Cornarius; again, 1567; Meyer secured both editions.

He was also author (*fide* Meyer) of a poem on plants in 78 hexameters, first

Pliny, and of particular value because not written for the learned, but for the people, taking both his numerous Gallic names * and his description of remedies and properties not from books, but from the mouth of the people; "so that," as Meyer remarks, "his work becomes the first rudiment of a Flora Gallica," "with many Gallic plant-names which he terms Celtic and which he could scarcely have found in writing, so that it is surprising that those making researches into the history of botany have neglected him so long."

Among Marcellus' plant names which are of interest to the student of Asters are the following:

"Sarcocolla † which is Argemonia." Marcellus might be

printed by Ruel, 1529, in his edition of Celsus, and credited to Vindicianus (an eminent physician whose letter to the emperor Valentinian, 364–375, is still extant), by others ascribed to Sammonicus, but of superior elegance, and differing in pronunciation of many plant names, Marcellus saying sināpi, not sināpi as Sammonicus, crōcus, not crŏcus, brassica, not brassicum, nasturcum, not nasturcium, etc.

* The following are examples:

Artemisia quam Gallice Bricumum appellant
Herba quae Gallice dicitur Blutthagio
Chamaeacte, quae Gallice Odocos dicitur
Papaver sylvestre, quod Gallice Calocatanos dicere
Serpyllum herba, quam Galli Gilarum vocant
Trifolium herba, quae Gallice dicitur Visumarus
Nymphaea, quae Gallice Baditis appellatur
Herba quae Gallice Vernetus dicitur
Proserpinalis herba, quae Graece Dracontium, Gallice Gigarus, appellatur (Arum).

† The occurrence of the word Sarcocolla in Greek and Latin is as name of a Persian gum, described by Dioscorides 3, 89 (99, edn. Saracenus) as follows:

"Sarcocolla, *σαρκοκόλλα* [literally "flesh-glue" because healing wounds], is the tear or exudation (*δακρύον*) of a tree growing in Persia; it is slightly brownish, has a bitterish taste, is similar to frankincense, has the power *vulnera glutinandi et oculorum fluxiones inhibendi* [whence doubtless applied as name of Aster, or of Argemonia in sense of Adonis, etc.; because of similar properties;—or to both]. It is a constituent in poultices. It is often adulterated with gum." This gum is still called *sarcocolla*; it is the *anzeroot* of the Arabs, *gujara* of the Hindoos, who use it still in medicine. It is imported from Arabia and Persia in light yellow or reddish grains; is now thought to come from some Astragalus; had been claimed to be the product of *Penaea Sarcocolla* L.; and is the origin by transfer of the name of the related South African genus Sarcocolla established by Kunth, 1830.

The name Sarcocolla to Pliny and to Galen was the same as to Dioscorides, the name of the gum; but from Marcellus Empiricus' synonym it seems to have been later applied to a plant of similar repute and use; perhaps in Byzantine regions to Aster Amellus, with which he may have been familiar both while living at Constantinople and while passing through mountains of Italy and Gaul; perhaps to Argemonia in the sense of Papaver, etc., which was also used both for wounds and ulcers and the eyes.

thought to have used these names for Argemon (= Inguinaria = Aster Amellus). But more probably he intended Argemonia, in the sense of Papaver (see *supra*, p. 156). So Strabus seems to have applied the names in 842, in whose poem they appear as "Agrimonia or Sarcocola." Marcellus avoids this confusion of Argemonia and Agrimonia, giving Agrimonia separate treatment, with a strange native name, "Hociamsani sive Agrimoniae radix," c. 20, a word which may owe its present grotesque form to a mistake in copying, and its resemblance to Hyoscyamus to accident.

Strumus herba, so mentioned twice, chapters 1 and 2; a name of the same form and origin with *Herba Inguinalis* for Aster; and implying a similar reputation for curing the *struma*, or ulcer. Marcellus Empiricus probably intended by this name our *Solanum nigrum* L.* Pliny also states, 27, 44, that some persons give the name *Strumus* and others *Strychnon* (= *Strychnon* in Dioscorides; and *Trychnon* in Pliny 21, 52 and 105) to the plant Cucubalus (*i. e.*, the owl's plant), or, in other MS., Cuculus (*i. e.*, cuckoo), meaning *Solanum nigrum* L., which Riley therefore terms "the 'strumous' or 'scrofula' plant." Its berries or leaves were used, says Pliny, for scrofulous sores, lumbago, headache, and serpent-stings.

Inula, quae Graece dicitur Helenium (*i. e.*, *Inula Helenium* L.).

Inula rustica, Halum, Alum Gallicum, Allium Gallicum, Symphyti radix, Portulaca; all these are given as synonyms by Marcellus Empiricus, for *Symphytum tuberosum* L., the Wallwurz of Germany, *σύμφυτον πετραίον* of Dioscorides, *alum* of Pliny.

Viola marina; "Ceratitis, quam herbam Violam marinam appellamus, (c. 27)"; an uncertain plant; *κεραῖτις* occurs, Theophrastus 3, 17, as name of *Trigonella Foenum-Graecum* L.

Other synonyms of interest include:

Lingua bubula, and Lingua bovis or Burduncula, are uncertain names, to be added, with *Corona bubula* of Apicius, to the old names formed from *βοῦς* considered *supra*, pp. 69, 70 n.

* Two plants of this reputed power are named *Strumus herba* by Pliny; one his *Ranunculus*, the Greek *Batrachion* (= Ranunculus Asiaticus, R. Sardoüs, R. muricatus, and R. aquatilis, *fide* Fée) of which Pliny says, 25, 109, "Our herbalists give this plant the name of 'Strumus' from the circumstance of its being curative of strumous sores and inflamed tumors, for which purpose a portion of it is hung up [in the chimney] in the smoke. It is a general belief, too, with them, that if it is replanted the malady so cured will reappear; a criminal practice, for which the plantago is also employed."

Mater sylvae; "Periclymenon, quam Sylvae matrem vocamus," c. 23; the first appearance of that name for *Caprifolium* which became strangely confused with Aster a thousand years later; see *Hieronymus Brunswicensis.*

Gladiatoricia herba, Sanguinaria herba* (Salutaris herba,* rosemary), Personacea herba, Sacra herba (= Verbena), Verrucaria herba, Orbicularis herba (= Cyclamen), Cymbalitis herba, Fel terrae* or Centaureum, are a few of his descriptive names, not Gallic, and partly of uncertain identity.

XVIII. APULEIUS PLATONICUS

Apuleius Platonicus, styled Herbarius, and in one MS., Plato, is to be distinguished from Apuleius Medaurensis (born about 130 A. D.), the author of the romance The Golden Ass, who was also sometimes styled Platonicus, having extended his education begun at Carthage, by studies in the Platonic philosophy at Athens.

Our Apuleius Herbarius seems also to have written in Africa, about 400† A. D., or at least before it was lost in Rome, in 439. It has been hinted that he was a descendant of the romancer; at any rate, the taste for the marvellous was still strong in him.

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* Also mentioned by Isodorus, about 600 A. D., by the same name.

† Sprengel, Geschichte der bot. 1: 184, 199, conjectured that the author was a monk of the 11th or 12th century, who had assumed the name of a distinguished Roman after an affectation common at that period. A MS. of Apuleius seemingly written about 1200 A. D. was deemed perhaps the oldest one. Meyer however shows (2: 322) that a Latin MS. of the 9th century still exists; and in that 9th century our Apuleius enjoyed such widespread fame that King Alfred the Great had a translation into Anglo-Saxon made, of which four 11th century MSS. still remain, with 184 chapters and figures; it is printed in Cockayne's *Anglo-Saxon Leechdoms*, Lon., 1864. Haller (Bibl. bot. 1: 166) had already observed that Apuleius lived in Africa, from the African or Carthaginian name which he gives for asparagus.—One MS. of Apuleius was in possession, says Fabricius (Bibl. bot. 3), of Isaac Vossius, and was written before 1200 A. D. It was also provided with figures. Cockayne collated 5 illustrated Latin MSS. in England chiefly Harleian. The figures are identical in most codices. It seems to have taxed the illustrator to represent the form of his magic plant, the Aster, suspended from the neck and shining in the night; as described in his text. Cockayne says that the drawing of *Asterion* in the best Anglo-Saxon MS. and in two of the Latin MSS., is "beyond interpretation." No doubt these simply repeated the figures of some lost MS.,—earlier than the 9th century: but not of Dioscorides, *fide* Cockayne's examination of the Vienna plates. In the second-best Anglo-Saxon MS., B, of date perhaps 1180, Cockayne found the Asterion figure to "remind us of Stellaria media"; as if the illustrator were groping anew for a plant whose name should translate Asterion.

His work *De herbarum virtutibus* * consists of 131 brief chapters, each devoted to the properties of a single plant, sometimes with a few descriptive characteristics, and often with a long list of synonyms, † many of which may have been derived from Dioscorides, but some of which as well as some of the medical uses stated, must have come from some unknown and later source. The chapter on Aster is the 61st, which I quote entire.

"61‡. Asterion. Nascitur inter petras et loca aspera. Hac herba nocte tanquam stella in coelo lucet, et qui videt ignorans dicat phantasma se videre, et metu plenus irridetur, maxime a pastoribus. Ad caducos. Herbae asterii baccaseis dab as manducandas Luna decrescente, cum erit in signo Virginis, et ipsam herbam habeant in collo suspensam, remediabuntur."

i. e., "Asterion grows among rocks and rough places. This herb shines by night just like a star in the sky and any one who sees it unaware of this fact may say that he sees a phantasm, and being full of fear he is laughed at, most of all by the shepherds. (Its medical use is) For fallings (*i. e.*, epilepsy). For these you may prescribe the berries (*i. e.*, *pills*) of the herb asterion to be chewed in the wane of the moon when it shall be in the sign Virgo; and should they wear the herb itself suspended about the neck, they will be healed." §

* First printed at Rome without date or printer's name in or before 1473 as is indicated by dedication to Cardinal F. de Gonzaga; before 1471, *fide* Pritzel. It has rough copies of the original figures, but is very rare. It was edited by Philip de Lignamine, who called Apuleius "a Platonist, now attempting to take up the work of the centaur Chiron who had learned his art from Achilles."

† Among these are synonyms credited by Apuleius (a native of the province of Carthage himself) to Carthage, and which the MSS. of Dioscorides credit to Africa, *i. e.*, to the Ἄφροι; showing that it is Carthage which the MSS. of Dioscorides intend.

‡ The *60* of references; but *61* of the A-S version, and of the annotated edition of Ackermann, 1788; also of the edn. Drouart, Paris, 1543, which I use; which (adding French names) repeats the text of the *editio princeps* by De Lignamine, but without its figures. Meyer, 2: 320, wrongly spells *Drouert*; but he had never been able to see a copy of that edition.

§ Cochayne translates the A-S version of this, "This wort which is named Asterion and by another name [blank in MS.], is produced between stones and in unsmooth places. This wort shineth at night as a star in heaven, and he who seeth it not witting what it is, he supposes that he seeth an apparition and so afeard (as he is), he is ridiculed by herdsmen and by such men as know the virtues of the wort. For the falling sickness, take berries of this wort, which we name asterion, administer it to be eaten when the moon is on the wane, and let that be when the course of the sun is in the constellation named Virgo; that is, in the month which is called August; and let him have the same wort hung on his swere (neck); he will be cured."

This chapter 61 on Asterion is unlike others in being without synonyms, at least in the Drouart edition—though Apuleius is often cited as using the synonyms Aster and Inguinalis.

Apuleius once uses Aster also as name of our familiar *Plantago major* L., quoting Aster among a long list of synonyms, saying of his *Herba Plantago*, "Some call it heptapleuron,—

"alii plantaginem majore, a Graecis arnoglosson, Galli carbidolupon; alii aster; alii arnion; Hispani tyricam vel thesaricam; alii septracimam ... Itali plantaginem latam," etc.

Apuleius adds that this *plantago* is a remedy for the bite of either a mad dog or a serpent. As Aster Atticus was in use for both purposes, its name had probably become confused with plantago on account of similarity of use.—Was it merely as a translation of Apuleius' *Aster* that Plantago appears as "Herba Stella" in Dodoens' *Pemptades*, p. 109?

XIX. PALLADIUS

One of the most popular Latin writers on agricultural subjects, Palladius was of very uncertain date, perhaps about 440 A. D., at least not before 438, suggests Meyer, and not after 540 A. D., when he was mentioned by Cassiodorus. Palladius' *De re rustica*,* in 14 books, consists in the main of a Farmer's Calendar, in 12 books beginning with January, with addition of an introductory book and of another on grafting in the form of a poem of 85 couplets. The whole is based on Columella, Pliny, Gargilius Martialis (about 210–240 A. D.) and Vitruvius. Palladius' work was itself known to Cassiodorus, 540 A. D., Isidore, 600 A. D., to Albertus Magnus, and Vincent de Beauvais; and to Petrus de Crescentiis,† last of the great writers in Latin *de re rustica*.

Columella was the author to whom Palladius was indebted

* "Palladius Rutilius Taurus Aemilianus;" in the Latin "Scriptores rei rusticae" by Gesner, Leipsic, 1735, etc., edited again, by Schneider, Leipsic, 1794. First printed by Jenson at Venice, 1472. An English translation by Th. Owen appeared at London, 1807.

† Petrus de Crescentiis, or Piero da Crescenzi, "civis bononiae," *i. e.*, of Bologna, whose works were printed 1471 at Augsburg by Schüszler under the title "Ruralium commodorum libri duodecim," and by John de Westphalia at Louvain in 1474. He was born, *fide* Meyer, shortly before 1235, must have completed his writings in 1305, and died between June, 1320, when he made his will, and Feb., 1321, when his son became administrator.

most of all, and one example of the way in which Palladius may be considered to have modified Columella becomes very interesting to the student of Aster. Columella's first list of wild plants beloved by the bees, consisting of amellus, acanthus, asphodel and narcissus, passing then into garden plants and enumerating the lily, snowdrop, rose, violet, hyacinth and crocus, has already been cited, p. 134. Pontedera* claims that this particular list was imitated by Palladius, *De re rustica*, bk. 1, c. 37, in whose new form it is as follows:

"Asphodilum, citraginem, amaracum, hyacinthum, qui iris vel gladiolus dicitur similitudine foliorum, narcissum, crocum ceterasque herbas suavissimi odoris et floris." In English,

"Asphodel, balm, marjoram, hyacinth which is called iris or gladiolus from the likeness of its leaves, narcissus, crocus, and other herbs of sweetest odor and flower."

Here Amellus disappears, as if unknown to Palladius after lapse of 400 years; and if any plant in the list replaces it, it is *Citrago*† or balm, a very different plant, mentioned by Palladius again, i, 37, 2; and v, 8, 6.

What is indicated by replacement of the Amellus of Columella by the *Citrago*, *i. e.*, balm, or *melissophyllon*, of Palladius? Probably the following:

1. Columella, perhaps not very familiar with Amellus in nature, and basing his own references to it chiefly on Vergil, had not been able to give reality enough to his references to impress posterity.

2. All true knowledge of the Aster Atticus of the Greeks had probably disappeared from Rome since Galen, and there was no surviving tradition to lead Palladius to connect the Amellus with it.

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* Giulio Pontedera, botanist of Padua, 1688–1757, author, 1718, of a "Compendium" in which he reviews 272 plants lately detected by him in Italy; and, 1720, of an "Anthologia" with 12 plates; both published at Padua. Two epistles of Pontedera concerning the botanical garden at Padua followed in 1726, and posthumous epistles later.

† Undoubtedly Palladius meant by citrago, or citreago as various editions have it, the plant *Melissa officinalis* L., Balm, the μελισσόφυλλον of the Greeks, and representing in large measure the Apiastrum of the Romans. Of this plant Matthioli, edn. 1560, p. 435, remarks "Melissophyllon, quod Latinis Apiastrum, et *Citrago* dicitur, Hetrusci ab odore citri vulgo vocant *Cedronella*, itemque Melissa, sicut etiam Insubres." Caesalpino, in 1583, calls it *Citronella*; and other Italians, *Citraria*; in Macer Floridus it appears as *Barrocus* and in the Apodixis Florae Germanicae, 1531, as *White Barheng*.

3. That Palladius made the substitution for Amellus which he did was probably due to the ancient gloss *melissophyllon* which was early written against Amellus in Vergil's fourth Georgic; or if Palladius did not see that gloss itself, the opinion which it represented may have been current in his time.

This leads to another inquiry. Did not a confusion grow up between the *melissophyllon* or *apiastrum*, and the Aster known as Amellus because of their similar reputation as bee-plants; and did not the author of the gloss just cited actually mean Aster by his name *melissophyllon?*

Such a probability is suggested by the ascription to balm of numerous uses highly characteristic of Aster Atticus, as follows:

Dioscorides, bk. iii, c. 101 or 118 (describing his *melissophyllon* or *melittaina*, in which bees delight), evidently intends to describe *Melissa officinalis*, but adds that it is efficacious against the bite of a dog, against tumors and ulcers. These properties sound very much as if borrowed from those of the other bee-plant, Aster Atticus. On examining Dioscorides' preceding description of his Ballota, or black horehound, with which *melissophyllon*, he himself says, was often confused, we find the same properties repeated. The properties may have been actually ascribed by physicians of that time to both Ballota and Melissa; or they may have been entered here under those names by confusion of the identity of the plants with Aster Atticus, a confusion due not to resemblance of appearance but of bee-loving habit.

Some general confusion certainly did exist later; apiastrum covering both *Melissa officinalis* L., and *Selinum palustre* L., in Latin usage. Pliny, Columella and Palladius all furnish examples of lists in which the apiastrum and its usual equivalent melissophyllon occur disjunctively as if not equivalents (though this may be due to inadvertence on part of the authors). In the 1492 edition of his commentary on Vergil, Cristoforo Landino notes that some thought then that *melilotus* was same as melissophyllon.

So among such writers apiastrum or melissophyllon may have meant Melissa, but a Melissa overloaded with properties imported from Aster Atticus, which some of Pliny's multitudinous non-extant authorities had probably confused with the preceding and described under the name melissophyllon. Ascription to Apiastrum

of the properties characteristic of Aster Atticus increased very much with Pliny, when compared with Dioscorides, including the following:

It cures ulcers—ulcera sanat.

It cures the bite of a dog—canisque morsus.

It cures swellings of glands in the throat—ulcera thoracis.

It cures inflammations or dimness of the eyes—caligines oculorum.

It cures "vulvarum strangulationes."

So Macer Floridus, who repeats most of the above.

So Avicenna, who adds to the properties of Melissa, "etiam visceribus conpetit [as cited by Matthioli, edn. 1560; 436].

So Simeon Seth, who enumerates properties normal apparently to Melissa and then adds, as if from Aster, "Bubones laedit" [as cited by Fuchs, edn. 1542; 500].

Others as Nicander, Varro, Vergil, Galen, Serapion, seem to have mentioned melissophyllon in a manner uncompromised by any probable importation from Aster Atticus.

XX. PLINIUS VALERIANUS

Plinius Valerianus, an author or redactor, perhaps of 600 A. D., was much in vogue at the Renaissance. His "five books of medicine" were first published in 1509 at Rome, as "Medicinae Plinianae"; again by Cratander at Basle, 1528, edited by Torinus; and a fifth edition by 1529. They contain the first instances of many modifications of Latin plant names which later became common, as Eviscum for Hibiscum, Jusquiamus* for Hyoscyamus; and also contain many names apparently Celtic or Arabic or otherwise foreign to Latin.

Plinius Valerianus has an interesting name for Aster's near relative, the Chamomile, *Anthemis nobilis*, calling it "Proserpina herba, quam alii Camomillam dicunt," 1, 38; Aster had been linked and associated with Athena and Hera; Anthemis had now become linked with Proserpine.

There were two other plants latterly dedicated to Proserpine;

*So written by writers like Bartholomaeus Anglicus, etc., the name appearing in editions almost as late as 1600.

arum, the "Proserpinalis herba" of Marcellus Empiricus; and the "Proserpinaca" of Apuleius Platonicus, said by him to be polygonum.

XXI. ISIDORUS

Isidorus Hispalensis,* Visigothic bishop of Seville, 596 A. D., who died in 636, a compiler who has been called a second Pliny, was the author of "Origines," or Etymologies, "Etymologiae" as he himself termed his work in a letter to his friend Braulio. His work contains absurd etymologies and childish definitions, but is particularly full regarding medical terms, remedies, etc., arranging plants according to use as *electuaria*, *cataplasmata*, etc. He often gives the Greek and Latin synonyms with a Spanish name† also; sometimes the Spanish name only, as in his Herbitum (mod. Sp. Erbato,‡ = Foeniculum), his Turbiscus (mod. Sp. Torvisco, = Daphne Mezereum). His names of interest as concerning Aster include Buphthalmus, 9, 93, and the following:

"Strychnos, Latine Herba salutaris vocatur (which latter name he also cites for Rosmarinum) et Uva lupina," 9, 78; meaning *Solanum nigrum?* Did Bock know of this last name Uva lupina as applied to Strychnos or Strumus herba (confused with Aster?) when he made his own Uva lupina an Aster?

Alam or Alant, "Inula quam Alam rustici vocant," chapter II, paragraph 9, edn. Otto: = Inula Helenium.

"Erigeron, Latini Senecionem vocant," 9, 53.

Malomellus, 7, 5. "Mella, Graece Lotos, vulgo Faba Syriaca," 7, 9. Coquimella (for Prunus), 7, 10. Oleomella, 7, 11.—Names which should be compared with *mel*, honey; or with *Amellus*?

* He was probably born of a Visigothic family at Cartagena, and adopted the name Isidorus on entering the church. He was bishop of Seville 40 years. The best edition of his works is that of Otto, Leipsic, 1838. He was much in vogue in the middle ages, by MSS., and was quoted as Ysid, Ysyder, etc., etc.

† His Spanish vernacular names include *Matris animula* for thyme, Sarralia for the *Lactuca agrestis* of the Romans, Nepeta for their *Menta agrestis* (*Nepeta Cataria* L.) Genicularis herba, Nixa for their Prunus, Millimindrum for henbane ("Hyosquiamos, a Latinis dicta Herba calicularis, vocatur et Herba insana, vulgo Millimindrum"); Stingum for Gr. Satyrion or Orchis; Radix (radish) for Raphanus.

‡ Not only do many such old names survive in Spain, but the whole mass of ancient plant-lore; the Spanish translation of Dioscorides being still, it is said, the accepted botanical standard.

EARLY BYZANTINE WRITERS

XXII. ANONUMOS

Anonymi carmen Graccum de herbis, is the caption long used for a fragment of 215 Greek hexameters, from an unknown author of perhaps 400 A. D., whom we may for convenience name as Anonumos. It was first printed, Venice, 1518, in the second Aldine edition of Dioscorides; its best edition is that of Choulant, Leipsic, 1832. Termed by Meyer not the work of a physician or naturalist but of one enchanted by the spells of rhetoric, the poem was filled by its nameless sire with mythological and medicinal lore, and an air of distinction was sought by use of the old Ionic dialect. The plants described number 16 or 17, including the following:

Chamaemelum, *χαμαίμηλον*, which is prescribed, line 1, for fevers, with oil of roses

Buphthalmon, *βούφθαλμον*, lines 128–132, which the poet describes as under the protection "of Ilithyia, the increasing Moon, light-diffusing lustrous maid," and directs the user to "take up Buphthalmon, invoking Ilithyia," so securing it as defence against fears and evil spirits and spells of magic and baneful drugs." Then follows a line connecting the plant with Zeus or Jove—

132. *Ταύτην τὴν βοτάνην Διὸς ὀφρύα πᾶς ὀνομάζει*, *i. e.*, This plant every one calls by the name of Jove's-eyebrow.

Anthemis.—After a gap of uncertain length, the poem is resumed with the name Anthemis, assumed by editors to be here used for the previous Buphthalmon and to continue the same description; if so, it is doubtless the same as the *χρυσίοισιν ἀνθέμοισιν* to the beauty of which Sappho had likened the loveliness of her daughter Cleis. But the *ἀνθεμὶς* of Anonumos may instead be the same as that of Dioscorides. The line reads:

133. *Χρυσωπὸν στίλβει παρυπεύκυκλος ἀνθεμὶς ἁβρή*, *i. e.*, With gold-face gleams delicate Anthemis, circled with her purple hem.

The purple border is appropriate if the author meant *Aster Amellus* L., by his Anthemis; or if he meant *Anthemis rosea* DC., deemed by Sibthorp to be the *Ἀνθεμὶς πορφυράνθης* of Dios-

corides; taking παρυπεύχυκλος for a form intended to imitate the Ionic and to include παρυφή, a purple border woven around a robe.

The lines remaining direct the use of Anthemis for a pain in the stomach (as with Aster in Dioscorides); and for toothache, using the root roasted; neither direction occurring in Dioscorides, for either his Anthemis or Buphthalmon. The special virtue of his Ἀνθεμὶς πορφυράνθης was, *fide* Dioscorides, for calculi. These particulars look as if Aster Amellus, shining with gold center and purple border, and used as stomachic remedy, was in the poet's mind as his Anthemis.—So with the *Anthemis nobilis*, in the illustrated Anglo-Saxon Apuleius; at least it is colored a blue purple.

Chrysanthemum; to this, lines 211–215 relate, beginning

> Take up the pure chrysanthemum dewy from the earth,
> Before the great sun renews his unending cycle,

continuing, Bear it about the body, for it is able to ward off drugs, and perils from unlawful magical spells.

Peristera, i. e., Verbena (now mixed with Eryngium?), is subject of lines 55–73, which declare it a plant dedicated to Aphrodite, of two kinds, Trigonion and Aristereon (see p. 161, n.) of use for the eyes and headache and as an aphrodisiac, to invigorate. So Kyranis (uncertain Greek author, edited by Harpocration perhaps 370 A. D.) indicates that Peristereon is a plant of Aphrodite by citing its otherwise unknown synonym * *Aphrodites.*

XXIII. AËTIOS

Aëtios Amydenos, another Greek medical writer† of date thought to be about 540 A. D., was author of sixteen books ‡ in which he

* Other synonyms Kyranis cites for it are Kynaedios; Meretricis (Dioscorides gave Mertryx as synonym for Geranion); Centum capita. Pliny's white Centum capita is *Eryngium campestre* L., which Kyranis calls Eringion, and of which his redactor, perhaps 700 A. D. (Kyranos; or the Kirani Kiranides, as the work is called by Raimundius Lullius, *q. v.*), says "Sow its seeds and you will find growing up a Gorgon's head."

‡ Born at Amida, now Diarbekir; seems to have studied at Alexandria; was a leading court physician at Constantinople, in or about the time of Justinian.

‡ The Greek original, as Sprengel remarks, lies hidden yet in some library; the second half has never been printed; the first 8 books were printed, 1534, at Venice, by Aldus Manutius; followed by Cornarius' excellent Latin translation (from which I quote), edn. Froben, Basle, 1542; and by the Latin translation with notes on the plants by Solerius, Leyden, 1549. Sprengel remarks that for establishing Dioscorides' text, Aëtios is "of little authority, because his extracts from Dioscorides are not literal, and he adds many from other authors and also many from his own description." This makes him the more important however as a source of the plant knowledge of his time.

presented a compend of the older Greek medicine. Aëtios is remarkable for the numerous and complex preparations which he describes under the name Aster; one medicine was his *Aster inexsuperabilis*, another his *Aster magni*, another his *Aster Asclepiadae*; they were his leading remedies, his star preparations; they contained sometimes the earth known as Aster, but not the plant Aster; they were useful for ulcerations as the plant Aster was; and it would seem that if their name had any relation to that of the plant it was through this similarity of their use. See p. 91, for details of his aster medicaments.

Aëtios by no means ignored Aster the plant, however; the following in his treatment of it, in his alphabetical discussion of simples;* using the Latin translation of 1542, and showing the context. It will be seen that it was adapted from Galen.

Asparagus....

Aster Atticus, Bubonium. Aster Atticus, quem alii Bubonium appellant, quod non solum in cataplasmate impositus, sed etiam adalligatus bubonias ac inguinum tumores sanare credatur. Habet etiam quod discussorium, ut mixtarum virium sit, velut rosa, sed bubonium non ita astringit.

Astaphis....

Bubonium sive Aster Atticus. De Bubonio dictum est in secundae appellationis elemento.

Buphthalmum. ... duritias sanent ad ceratum permixti.

XXIV. PAULUS AEGINETA

Paulus Aegineta,† Greek author, perhaps 630 A. D., of seven books of medicine,‡ was called § the most renowned physician

* P. 14 of edn. Froben.

† Paulus Aegineta, called Aegineta, Aeginetos, from birth in the island Aegina; called Periodeutes, *i. e.*, circulator, as a peripatetic physician; and called Iatrosophistes, *i. e.*, philosopher of the healing art. He is deemed by Fabricius (Meyer, 2 : 412) to have flourished under Constantinus Pogonatus, 668–685 A. D. Abulfeda states that he lived in Alexandria; if so, doubtless before its capture by the Saracens under Amrou, 640. Haller, approved by Meyer, assigns him to the age of the emperor Heraclius, whose reign was 603–641 A. D.

‡ First printed by Aldus in the original Greek, Venice, 1528; from which edition I quote: again, Basle, 1538: three Latin translations appeared in that century, by Cornarius, 1556, etc.; and an English translation, an unusual thing among writers of his class, London, 1847, by Dr. Francis Adams. Sprengel praises the edition of 1538, accurately edited by Hieronymus Gemusaeus, and of great use in establishing the text of Dioscorides.

§ By the Arab writer Abul-pharagius.

of his age. He long remained an important source of mediaeval citation. Writers were quoting what he had to say of Aster Atticus as late as the revival of learning; as in the Gart der Gesundheit (edn. Mentz, 1485), where, article Unguinalis, we read,

"Paulus says in his chapter 'Aster' that this is a plant which has rather long leaves and at the summit bears a star."

These statements, however, are traceable to Dioscorides, and do not occur * at all in the passage about Aster Atticus as it actually exists in the Greek text of Aldus which I proceed to quote in the English translation by Adams—being really, as Adams observes, extracted from Galen, from whom indeed much of Paulus' plant-knowledge was derived.

Paulus' remarks † on Aster are as follows:

"Aster Atticus; ‡ Starwort is also called Bubonium because it is believed to cure buboes, not only when applied for this purpose but even when appended as a periapt. It is possessed of mixed powers, being discutient and cooling."

On which Adams comments as follows: "Our author's account of the Starwort, Aster Amyllus (*sic*) is taken from Galen, who in his turn copied from Dioscorides. In the common editions of Dioscorides there is a passage under this head (which although quoted by Serapion § 96, is scarcely considered genuine by Sprengel, seeing it is not alluded to by Galen or Pliny) in which the Aster is recommended for ardour of the stomach, inflammation of the eye, buboes and quinsies. The Arabs in treating of the Aster Atticus, copy from Dioscorides. See in particular Avicenna, ii, 2, 357 and Serapion, de Simpl, 36 and Rhases (Contin. I., ult. 95). It is not found in the works of Celsus. It held a place in our modern dispensatory down to a late date. See Quincy (116)."

* Indicating that the author was quoting not from a manuscript of Paulus but at second hand, and that in transcribing he or some preceding authority had exchanged names of his authors.

† Adams' Paulus Aegineta, 3: 59; Lon. 1847, book 7, sec. 3.

‡ *Ἀστὴρ Ἀττικὸς οἱ δὲ βουβώνιον, ὅτι μὴ μόνον ἐπιπλαττόμενον, ἀλλὰ καὶ περιαπτόμενον*, etc.

ARABIC WRITERS. XXV. RHAZES

Rhazes, Rhasis or Arrazi, Arabic author of Persia and Bagdad, who died 932, A. D. (*fide* Abul-pharagius), was writer of works combining medicine, astrology, alchemy, etc., printed, in translation in barbarous Latin by Feragium of Salerno, under the name *Continens*, as at Brixiae, by Jacobus Britannicus, 1486; including many plant-references in books 21, 22 and 23, with their properties mostly transcribed from Dioscorides and Galen. Among these plants Aster Atticus appears, Continens, 1. ult. 95. Rhazes was so named from his birthplace, Raiz in Persia; was the first Arabic writer to treat medicine in encyclopaedic manner; and was the first writer to give any accurate description of measles or of smallpox.

XXVI. AVICENNA

Avicenna or Ibn Sinâ, born 980 A. D., son of an official of Bokhara under the last of the Samanides (Nuh' Ben Manssur, ruling 976–997); went into Dahistan, 1012, and lived afterward chiefly in Persia, where he died, at Hamadan, 1037. His books, though brief, number over 100, including his celebrated works on medicine, and on plants, animals and astronomy; with commentaries on Aristotle; especially his Qanûn, or book of the Canons of Medicine,* in which occurs his chapter† on Aster Atticus, book ii, 2, c. 27. His works formed the scientific code of the middle ages, eclipsed the fame of Hippocrates and Galen, and took the place in European universities of the Greek authorities from whom they were extracted —in France till about 1700.

"By Avicenna," remarked Fuchs,‡ "Canon 2, c. 17 [27 *recte*], Aster Atticus is wrongly written Atratisus; and in like manner almost all names of herbs are by Avicenna corrupted."

* First dated edition, 1473, Milan, in Lat., prob. tr. by Arnald; printed earlier by Mentelin at Strasburg, twice at least. Printed at Rome, 1593, in Arabic; in 1595, Lat. tr. by Gerardus Cremonensis; in 1658, one by Plempius at Louvain of the 1st, 2d and part of the 4th books; in German translation, 15 books, by Sontheimer, 1844, at Freiburg.

† The 27th of the 757 chapters (mostly plants) of Avicenna's *materia medica*. I quote it from signature *bb.ii* of my unpaged copy of Arnald de Villanova's tr., printed Venice, 1486, by Pierre Maufer *et socii*. "De atratisus, Ca. 27. Atratisus quid est. Est medicina cognita cum chali [*i. e.* cum nomine chali?]. Natura. In ipsa est parum infrigidationis et non est in ea stipticitas. Operationes et proprietates. Desiccat cum equalitate et eius virtus est resolutiva cum infrigidatione. Apostemata et bothor [*i. e.* ulcera]. Confert apostematibus emunctoriorum more emplastri superposita et suspensa."

‡ Brunfels' De vera, 155. 1531–2.

XXVII. SERAPION

Serapion the Younger,* of 1110 A. D., or after, one of the most important mediaeval authors to describe † Aster Atticus, was long our chief source for Arabic plant knowledge, and formed in his writings a connecting link between the Greek world of thought and that of the caliphate. His identity is shrouded in mystery, and to his date there is no clue within two centuries. He is not himself cited by any Arabic writer, or by any writer at all until the time when Simon Januensis translated him into barbarous Latin, about 1292 A. D. He himself cites writers only to 1106 A. D., and may have written shortly thereafter. His original text needs to be diligently searched for, and Meyer observes that no Arabic MS. of Serapion is known to exist in any library in Europe.

This author with a Greek name but writing in Arabic and known to us only in Latin, has been thought from his modes of expression to have been a Christian residing among the Moors of Morocco or of Spain. He knew Dioscorides and Galen in Arabic translations, and united their remarks about plants with those of other Greeks ‡ and of certain Arabs into one tissue. He treats of

* To be distinguished from Serapion the physician of Alexandria of the third century B. C., none of whose writings are extant; and also (as Meyer remarks) to be distinguished from the physician Joannes filius Serapionis, also called Janus Damascenus, and, in Arabic, Jah'ia Ibn Serafiun; who is cited 785 A. D., and whose Greek writings were translated into Syriac not long after that time. To be distinguished also, and much more readily, from St. Serapion, the scholastic of the monastery of Arsinoe in upper Egypt, friend of St. Anthony, and who is known for his defence of Christ's divinity, made at a council of 347 A. D.

† In the *Liber Serapionis aggregatus in medicinibus simplicibus*, 26; 96; so denominated in its Latin form, a translation made by Simon Januensis about 1292 with the help of the Jew Abraham Tortuosiansis; printed first at Milan, 1473. Sprengel used a Leyden edition of 1525; Meyer deemed the best edition to be that of Brunfels, printed at Strasburg, 1531, together with Averroes, Rhasis, etc., by the title, "Joan. Serapionis Arabis de simplicibus mediciniis opus praeclarum et ingens."

‡ Especially from a "Liber de Agricultura" of Qosthus, a Christian physician of Baalbec and of Armenia, who traveled in Greece and made translations from the Greek at Bagdad; who lived perhaps 860 A. D.; whose name Qosthus is an Arabic form for Constantine; and from whom Meyer gives quotations, *Geschichte*, 3: 151–4, De Lactuca, etc. An Arabic translation of his works seems to have been made from a Persian translation by Sergius. Meyer deems Serapion's quotations from his Asceos, Barbios, Constantinus and Costes to have been all from this one Qosthus.

plant-remedies in 365 chapters, and then follows with a few from minerals and from animals. Often our text of Dioscorides differs greatly from that of similar passages in Serapion. Older critics, as Leonicenus, attributed these differences to Serapion's supposed lack of familiarity with Greek; more recent critics, as Sprengel and Meyer, ascribe the diffcrences not to Serapion, but to some older translator of Dioscorides into Arabic, who had a better Greek text than our existing MSS. Sprengel, therefore, praises Serapion as a source for the correct text of Dioscorides, deeming him "uberrimus,*" and his writings an "egregium opus,"† "much more important for the natural history of plants than any previous writer in Arabic."

In this connection it becomes of especial interest to observe that Serapion in his article on Aster Atticus, which is substantially that of Dioscorides, includes all Dioscorides' statements which Sprengel separated as spurious or doubtful. In the disputed reading as to color of Aster flowers, purple *or* yellow, or purple *and* yellow, Serapion reads or, ἢ, not *καὶ*, which Marcellus Vergilius inserted; see p. 141.

Serapion's greatest peculiarity, as regards Aster Atticus, was his identification of the plant with Centum capita, or Eryngium. The light he throws on the probable text of Dioscorides is more important but less remarkable. The identification of Aster Atticus with Eryngium was made in set terms by Matteo Silvatico in his Pandects; and he was led to it by Serapion's confusion or extension of the name Centum capita. Serapion's words were quoted ‡ by Giacomo da Manlio or de Manliis, about 1450, as follows:

"Etiam in Serapion ait, 'Ascaracon, id est, Centum capita, est coelestis coloris,' inferius dicitur 'Iringi.' Sed Centum capita alba, est species spinae."

Serapion's version (in Simon Januensis' translation) of the name Aster Atticus, Astaraticon, is printed as Ascaracon. Serapion interpreted a blue flower which he knew as Centum capita, as the original of Dioscorides' Aster Atticus. Whether his "celestial colored" Centum capita was our Aster Amellus (which may have

* Sprengel's Dioscorides, pref.

† Sprengel's Geschichte.

‡ Brandis' De vera, 170.

been out of his range of travel and so never seen); or was Simon Januensis' name for our Aster Amellus (which may have been familiar to him in his life in northern Italy); and may have been introduced by Simon in translating, as his understanding of Serapion's original; or whether Centum capita was used by Serapion or by Simon or both, for a small blue-flowered species of Eryngium, by extension from its white relative; certainly without access to the text, these are but conjectures. But probably in one of these three ways it came that Pandectarius and de Manliis understood Serapion's identification to be with the common Centum capita, a white spiny plant, the Eryngium of most authors then and since. So it happened that Pandectarius identified Aster Atticus with a white Eryngium, an impossibility which de Manliis pointed out, c. 1450, and which Fuchs exposed again, 1531.

XXVIII. OTHER ARABIC WRITERS

The translation of Dioscorides into Arabic early brought the knowledge of Aster Atticus into lands far remote from its nativity. The first translation by Stephanos, son of Basilios, was made at Bagdad in the reign of Motawakkil, 847–861, and revised * by the learned H'onain Ben Ish'aq,† court physician to the caliph Motawakkil. Under Abd Arrah'mân III. of Spain, 948–9, a new copy of Dioscorides in Greek with figures of plants and with a Latin translation, was sent to Spain from the emperor of Constantinople, Romanus II., and was followed, 951–2, by the learned Nicolaos, "to give instruction to Arabic physicians in Cordova and to expound the Greek names in Dioscorides." A new translation into Arabic followed, completed 982, by Ibn Dscholdschol, probably at Cordova. Another later translation was by Ibn Walid.

Three hundred Arabic medical writers are listed by Wirstenfeld.

* A MS. copy is in the Bodleian Library and another in Paris; and a copy without translator's name, in the Escurial, may be the same, *Meyer*, 3: 138.

† Ysaac, or Honain Ibn Ishak, born, it is said, 809 A. D., died 873, son of an apothecary of Omar's time. He made translations into Syriac from Aristotle and from Nicolaus Damascenus. He was the Arabic translator of Hippocrates, Galen and of Paulus Aegineta. He or his son of the same name was author, *i. e.*, translator, of Ysaack's De Simplicibus medicamentis, printed 1515 at Lyon. His nephew H'obaisch also made translations. His daughter also, was author of medical commentaries.

Arabic authors who are likely to have treated of Aster but of which I have not been able to get detailed evidence include:

Haly filius Abbas, or Ibn Alabbâsz, a celebrated Persian physician who died 994 and wrote before 983; his *Liber totius medicina* was a Latin translation from him, made 1127 by Stephanus Antiochenus, and printed Venice 1492, and Lyons 1523; not yet printed in Arabic; this "Royal Book" was the Arabic standard in medicine till Avicenna wrote.

Mesue or Filius Mesue * or Janus Damascenus, who lived 926–1016; wrote on medical remedies, including Eupatorium, etc.; a Latin translation appeared at Leyden, 1531, by Campegius; and at Venice, 1540; another issue at Venice, 1562, printing two Latin translations together, the new being by Sylvius; his *De Simplicibus* was for centuries the standard for materia medica and was used in forming the first London Pharmacopeia, time of James I.

Ibn Gólgol, court-physician to the Moorish caliph in Spain Hischâm II., who reigned 976–1013; travelled in Syria, etc.; wrote on the remedies omitted by Dioscorides; discussed many herbs, and treated especially of palms and other trees.

Ibn Alawwâm of Seville, wrote 1158 or before, *Meyer*, 3: 261; his *Libro de Agricultura*, published at Madrid, 1802, in a Spanish translation from the Arabic, by Banqueri, mentions 585 plants.†

Averroes, or Ibn Roschid, born at Cordova about 1126, died at Morocco 1198, the great Arabic commentator on Aristotle; many of his writings on natural history have appeared in Latin, as his *De Simplicibus*, published by Brunfels, 1531, with Rhasis, etc.

Moses Maimonides, or Mûsa Ben Maimun, a scholar of Averroes, born 1140 of a Jewish family in Cordova, also wrote on plants; as in his *Mischna*, published at Amsterdam, 1698–1703, in the Latin translation by Surenhusius. His work also exists in Hebrew as well as Arabic.

Ibn Baithâr, a Malagan, who travelled in Greece, Asia and Africa, and who, says Sprengel, "*ardor incredibili pulsus*, wandered

* The elder Mesue, who wrote 857–8, was also famed for his knowledge of drugs.

† The French translation by Clement Mullet, in 2 vols., Paris, 1864–7; 8vo, 1434 pp., bears the title *Ibn-Al-Avam Le Livre de l'agriculture.* A copy of this edition, already rare, was offered in Paris in 1901, at 20 fr. One is in the Sturtevant library.

over all the Orient for the sake of collecting herbs," was court physician in Egypt 1238 and died in Damascus 1248. He described 1,400 plants; a selection was published by Dietz in 1833 at Leipsic (derived from MSS. at the Escurial, at Madrid, Paris and Hamburg), entitled "Elenchus materiae medicae Ibn Baitharis Malacensis." Sprengel remarks, *Geschichte*, 1: 240, publ. 1807, "Baithar alone among Arabs went to nature instead of relying on Nestorian and Greek writings," and again, 1: 238, "I grieve over nothing more than this history should be written without Baitharidian aid"—not even Dietz's selection from Baithar having yet been published.

Ibn Alkotbi or Malajesa, born in Armenia, lived in Bagdad, a physician and a botanist of talent and sagacity; author of what Dietz termed an epitome of Ibn Baithâr; but it was really much more, says Meyer, 3: 243; Sprengel had deemed it a compend of Dioscorides of the 10th century by Abul Fadli. Three MSS. exist in Paris and two at Oxford; one of the former was completed (by the author himself, *Meyer*) Nov. 8, 1311, as the MS. attests.

VARIOUS LATE GREEK WRITERS

Mention of Aster Atticus by rearrangement from Dioscorides is to be looked for next in Photius, in Simeon Seth, in Stephanos Magnetes, and in Nicolaos Myrepsos.

XXIX. PHOTIUS, made patriarch of Constantinople 858 and banished 886, who remained thereafter engaged in studies in a monastery in Armenia, prepared, in his Myriobiblion,* 280 volumes of analyses and extracts, of which the 178th contained Dioscorides, volumes 216–9 Oribasius, 221 Aëtios, 278 Theophrastus.

XXX. SIMEON SETH, or Sethi, an obscure but able writer, who seems to have been a physician from Antioch, and a high official of the palace at Constantinople, was styled magister or protobestiarch, and dedicated his work on plant-remedies and foods† to the Emperor Michael VII. (Ducas) who reigned 1071–8.

* Printed, the Greek with Latin translation, by Andr. Schottus of Antwerp, at Rheims, 1653; the Greek alone, with recension by Bekker, Berlin, 1824.

† Simeon Seth's "Syntagma ... de cibariorum facultate," first published in Latin translation by Gyraldus of Ferrara, Basle, 1538; again, edited by Monthesaurus of Verona, Basle, 1561; and published in the Greek original with a Latin translation, Paris, 1658, by Bogdanus; all of which rare works were in Meyer's library.

The contents of the work show that the author was a contemporary. Sprengel deemed him to be the same Simeon to whom in 1034 the Emperor Michael IV. (the Paphlagonian) resigned the government when he became a monk. Meyer doubts his being the same, as there were 38 years between the two periods of activity. Simeon Seth's work is a well made compend, *fide* Meyer, from Aetios, Paulus Aegineta, Oribasius, Rufus Ephesios, Galen, Dioscorides, Theophrastus and Hippocrates, also showing knowledge of physicians of Persia, Arabia and India. From its first Latin translation Fuchs (edn. 1542, p. 500; also edn. 1551, p. 485) quotes, "ex Symeone Sethi," under *Melissa officinalis*, in such a manner as to suggest origination from Aster Atticus, Simeon Seth saying of the plant "Bubones laedit," *i. e.*, it disperses inguinal tumors; representing Dioscorides' remark of his μελισσόφυλλον, "Strumas discutiunt, ulcera purgant." Dioscorides' recommendation of his melissophyllon for ulcers and tumors* seems to have been borrowed from the ulcer-curing power of his other bee-loving plant, Aster Atticus; confusion between the two seems evident in later centuries; see *supra*, Palladius, p. 175.

XXXI. STEPHANOS MAGNETES,† who wrote ‡ about 1100 A. D. on medical plants§ and added their Arabic names‖; claimed¶ that Dioscorides' chapter on Chrysanthemum is a later addition, being

* Dioscorides, remarking that many persons confused the *melissophyllon* with his *Ballota* or black horehound, ascribes to the latter also these same curative powers.

† Dietz distinguishes Stephanos Magnetes from Stephanos Athenaos, a physician, who wrote under Heraclius (603–641) and from Stephanos Alexandreus, an alchemist who dedicated his work (Ideler's Physici et medici Graeci minores, 2: 243. Berlin, 1842) to the same emperor.

‡ His Commentary on Galen and Scholia on Hippocrates were for the first time edited in the Greek by Dietz, 1834.

§ He was probably the original Greek author of the "Alphabetum empiricum," printed by Caspar Wolf at Zurich, 1581, from a Latin MS. which Gesner possessed; and which still exists in the unprinted Greek MS. at Vienna. This work is based on Dioscorides, rearranging his plant remedies under an alphabetical series of the diseases. A later unknown reviser, whom we may with Meyer, 3: 370, term Pseudo-Dioscorides, may have added the name Dioscorides which now heads the MS.

‖ The Arabic name *Sumach* for Rhus makes its appearance here.

¶ Fraas made the same claim more recently and with fresh proofs. Magnetes deemed Dioscorides' "Chrysanthemum or Anthemis" the same as his Buphthalmon, thus identifying it with *Chrysanthemum coronarium* L. "the only plant about towns in Grecian lands with large golden flower and many-parted foliage." See *supra*, under Hippocrates.

partly in the same words as his Buphthalmon;* and is, I think, the first author to use the word Lulakion, to be compared with the modern Greek for a daisy or for a flower in general, in the form λουλούθια: and with Persian *lilak*, the *lilac*.

XXXII. NICOLAOS MYREPSOS, Alexandrinus, author of a Greek Antidotarium, between 1270–1280, not yet printed; a Latin translation by Fuchs appeared in 1549 in 48 sections, at Basle; and an earlier one by Ammonius, at Ingolstadt, 1541.

XXXIII. ACTUARIUS. Perhaps the next Greek writer to mention Aster Atticus was Actuarius,† Greek physician of Constantinople, who wrote‡ about 1300 A. D., quoting Dioscorides upon Aster, and who is cited by Bodaeus as identifying Theophrastus' *Asterion* with Aster.

MEDIAEVAL PLANT-WRITERS OF THE WEST

The search for indications of the attitude of mediaeval writers to Aster,—which involves their attitude to the Compositae and to many other plants—leads next to an almost untrodden field. It requires an examination into the approximate place, time, character and value of many little-known plant-writers, some of whose works§ have but recently come within the knowledge of science. Only in this way is it possible to trace the sources of the Aster-chapter in the *Ortus Sanitatis*, which ushers in the Revival of Learning.

I have therefore treated this less familiar part of the subject—substantially the period 800–1300 A. D.—with much greater fullness than might be suggested by the paucity of its direct contributions to knowledge of Asters.

* He has been credited with a new synonym, *Persea* (or *Persa*) *sylvestris*, for Amaracus (*fide* Dufresne, apparently from an ancient glossary); Amaracus which Galen and other ancients use for *Matricaria Chamomilla* L. But perhaps Dufresne's *Amaracus* was a slip for *Amygdalus* or *Amandalus*, and the peach may have been the real intention.

† Actuarius, incorrectly Auctuarius, in Greek 'Ακτουάριος; his actual name, Joannes, son of Zacharias; he dedicates a work to his tutor, Joseph Racendytes, who lived under Andronicus II, Palaeologus, 1281–1328.

‡ In his *De Methodo Medendi*, θεραπευτικὴ Μέθοδος, in 6 books; of the Greek text only books 1 and 2 have been printed (see Ideler's *Physici Minores*). A Latin translation of all, by Mathisius, first appeared at Venice, 1554; the 5th and 6th books were published separately in a Latin translation by Ruellius at Paris 1539 and Basle 1540, under the title "De Medicamentorum compositione." The *Medendi* is said to have been extempore and designed for the use of his schoolfellow Apocauchus during an embassy to the north. Meyer, 3: 386, styles Actuarius "a man of Geist and a classical philosopher, worthy of birth in a better age."

§ As the *Della Confezione* in *Magistri Salernitani*, Turin, 1901.

TRACES OF REVIVING BOTANY UNDER CHARLEMAGNE

Medical studies, to which we might look for the early indications of an awakening knowledge of plants in Western Europe, made a slight beginning under Charlemagne. But even the names of his two Jewish court physicians, Ferraguthus and Buhahyliha Bengesla, are claimed by Meyer to have been mistakenly attributed to his period. The latter is said indeed to have written his medical work Tacuin at Charlemagne's command; but according to Meyer, however, he is to be identified with that physician of the same name who died at Bagdad, 1100 A. D., a convert to Islam.

Centers of learning grew up at Metz, Hersfeld, Osnabrück, Korvei, Reichenau, St. Gall, St. Emerau, etc., and especially at Fulda,* famed for monastic studies of Rhabanus, Grimoald and Walafrid Strabus; not to omit the "school of the palace" at Charlemagne's court, over which he placed the English scholar Alcuin, 782–804, preceded by Paulus Diaconus the Lombard, and by Petrus Pisanus who gave instruction to the monarch himself. Distinct recognition of medical studies in the west appears in Charlemagne's *Capitulare* or charter for his "Kathedralschule," issued at Thionville,† 806, empowering it to teach "De medicinali arte ut infantes hanc discere mittantur."

XXXIV. CHARLEMAGNE'S CAPITULARIES, 800 +

After Charlemagne‡ had been crowned emperor of Rome, December 25, 800, a classified list or Capitulary § of his possessions was prepared at his order, copies of which were found in the Helmstädt and Wolfenbüttel libraries, and the 70th chapter of which forms a list of the plants of the royal garden, including fruit-trees, kitchen-herbs and medicinal plants, and also ornamental plants, as "Rosae, Lilium, Gladiolus," about 105 plants in all being catalogued. The few Compositae which occur are only

* Fulda, in Hesse-Nassau, 53 miles northeast of Frankfort; its abbey was founded 744, around which the town grew up.

† Thionville, the ancient "Villa Theodonis," the Diederhofen of the Germans, on the Moselle, 18 miles northeast of Metz.

‡ Charlemagne, born 742?, reigned 768–814, dying at his western capital, Aachen or Aix-le-Chapelle, January 28, 814.

§ The "*Capitulare de villis et cortis imperialibus*," first printed 1647, Helmstädt, edited by Conring; important editions are those of Bruns, Helmstädt, 1799, and Pertz, Hanover, 1835 (in *Monumenta Germaniae*, 3: 181).

these: Abrotanum (= *Artemisia Abrotanum*), Dragontea (= *Artemisia Dracunculus*), Intubae and Solsequium (= *Cichorium Endivia* and *C. Intybus, fide* Reuss), Lactuca (= *Lactuca sativa*), Tanazita (= *Tanacetum vulgare*), and Costum (= *Balsamita ?*).

Some of Charlemagne's plants are completely disguised, as Warentia (= *Rubia tinctorum*, Fr. Garance), Vulgigina (plural, = Asarum Europaeum), Britlae (= Allium Schoenoprasum), Pirarii (= Pyrus communis), etc.

XXXV. CHARLEMAGNE'S BREVIARY, 812

Charlemagne gave instructions in 812 that an inventory be made "of all things in the church, farmhouse and tenements, and in the royal possession." One of these "Breviaries" or inventories remains in the Codex of Helmstädt,* and contains 50 plant-names, which forms, remarks Meyer, 3: 412, "the first rudiments of a Flora Germanica." Many of the plants of the Breviary are less classically named than in the Capitularies, progress toward Gallicizing their Latin names showing in frequent clippings at either end, as Scalonia for the previous Ascalonia and Petresilum for Petreselinum; or in the middle, as Nepta for the Latin Nepeta. The Compositae of the Breviary are only "Abrotanum, Tanezatum or Tanazita, and Costus." Names of special importance in the present connection include:

Acrimonia: not in Capitularies; Meyer deems it to be = *Agrimonia Eupatorium* L.; but not the Agrimonia of Strabus and of others later (as Pseudo-Macer), which was the Argemonia of Pliny; see *supra*, pp. 156, 169, etc.

Caulae and Caules: *Cauli* in the Capitularies; = Caulis of Macer; late Latin for Brassica the cabbage; see p. 205.

XXXVI. RHABANUS

Bishop Rhabanus† or Hrabanus of Mentz‡ was perhaps the

* Helmstadt in Brunswick, seat of a former university.

† Rhabanus Magnentius Maurus, 774–856, Abbot of Fulda 822–842, afterward Bishop of Mentz, 847, etc., born of an ancient family at Mentz, was devoted to learning from boyhood, and already at school at nine, pursuing studies in a Benedictine cloister at Fulda. His friend Bishop Haymo of Halberstadt had a copy of the *De Universo*, about 843.

‡ With Rhabanus begins the long series of associations of botanical history with Mainz, Mayence or Mentz, the city which Gutenberg was to immortalize by his completion, 1456, of the invention of printing. Mentz, on the west bank of the Rhine opposite

chief writer during Charlemagne's reign to pay considerable attention to Nature. His extensive work, *De Universo*, was the labor of his youth, written while in the cloister at Fulda, completed when about 29, in 803, and consisting of 22 books, modelled upon the work of Isidorus Hispalensis. In it he mentions about 100 plants, giving their etymologies, properties and products, but with more attention to "their symbolic or spiritual meaning" than to their actual characters.

XXXVII. WALAFRID STRABUS

Walafrid Strabus* or Strabus Fuldensis, 807–849, a Suabian

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the mouth of the Main, was successively a Celtic town, a Roman camp, the Roman capital of Germania Superior, and the head of the mediaeval league of Rhenish towns. Here in 840 on an island in the Rhine, died Louis le Debonnaire, le Pieux, at the age of 72, son and successor of Charlemagne. Here in 843 at the treaty of Verdun (the foundation of the German Kingdom), in the partition then made of the empire of Charlemagne, the line of Germany which usually followed the Rhine, was swerved to the west so as to include Mentz in the territories of Louis the German. Here its archbishop Hatto I. conducted the government of Germany during the reign of Louis the Child, 900–911. Here in 913, Bishop Hatto died, to be flung by the devil, says German legend, into the crater of Etna for his crimes. Here in 968 another ill-fated Hatto became bishop, builder of the "Mouse-tower," to be eaten alive there, says the legend, in the following year. Here, soon after the invention of printing, were the first dated issues from the press of those curious compends of botanical legend, he Ortus Sanitatis, 1491, the Gart der Gesundheit, 1485, and the Herbarius or Aggregator practicus, 1484.

* Walafrid, Walhafred, or Walahfrid, as contemporary writers spell his name; born 806 or 7, *Choulant;* calls himself a Suabian; studied at Reichenau under Tatto; then at Fulda under Rhabanus; and either there or at St. Gall under Grimoald, and dedicating his "Hortulus," to "Abbot Grimoald" who was elected abbot of St. Gall, 841–2 and died 872; to the relations of the two as master and scholar, Ermenric the monk of Reichenau in dedicating his grammar to the Abbot Grimoald made the following allusion: "Domnus Walhafredus tibi notissimus, quem etiam tu ipse, ut peritus cathegeta, peritam sophistam enutristri;" "*i. e.*, Master Walhafred is very well known to you, whom you yourself, as skilled guide, nourished and developed into a skilled master of learning." Walafrid became a Benedictine monk at the cloister of Reichenau, the Latin Augia, an island (now in Baden) 5 miles from Constance, in the Untersee of Lake Constance; this abbey, founded about 728, was secularized 1803. Here Walafrid read, in 825, at the age of 18, wrote his Vision of the monk Wetinus (Wettin), dedicating his poem to Grimoald and mentioning his instructors Rhabanus and Tatto the monk of Reichenau. At Reichenau or before, Walafrid had adopted the name Strabus, saying of himself in a poem to Grimoald

Edidit haec Strabus, parvissima portio fratrum,
Augiae quos vestris insula alit precibus.
Strabonem quamquam dicendum regula clamet,
Strabum me ipse volo dicere; Strabus ero.

who was elected in 842 at the age of 35 Abbot of Reichenau, wrote in that year or shortly after a poem on plants, his *Hortulus*,* in 444 Latin hexameters, termed by its discoverer a poem of "elegantia delectabilis."

Some claim that Strabus, after studies at Reichenau and Fulda, was for a time at St. Gall, on the Swiss side of Lake Constance, and that he was deacon (*fide* Schöttgen) and finally abbot (*fide* Trithemius) of its ancient abbey; founded in the 6th century as result of the teachings there of the Irish monk St. Gall, and continuing until 1805.†—During some period previous to 842 Strabus was directing instruction at Reichenau and with such success that he was made its abbot, 842, when but 35. Hermannus Contractus or Herimannus Augiensis, monk at Reichenau, 1043–1054, says of him in his chronicle merely that he was 12th abbot, and for 7 years. Goldast in his collection of "Alamannic writers" cites a MS. as saying "Walafrid had by reason of his learned studies so neglected the management of the business of the cloister that he was compelled to resign his office as abbot, and was expelled from the cloister." If this was true, then, as the "Histoire literaire de la France" remarks, cited with approbation by Meyer, 3 : 424, Strabus must have been later made Abbot again, for he was abbot in 849, when his sovereign, King Louis

* First printed 1512 at Nuremberg from a MS. found at St. Gall, Switzerland; best edited by Choulant, Leipsic, 1832, and by Reuss, Würtzburg, 1834.

† Plants around St. Gall at a little later period are said to have occasioned one of the more celebrated among the Latin hymns of the middle ages,—written by the learned Notker Balbulus, 840?–912, monk of St. Gall, reformer of church music and author of its "sequences," Of his well-known antiphonal beginning

Media vitae
In morte sumus,

Prof. F. A. March remarks: "This world-famous hymn is said to have been composed while watching the samphire-gatherers on the precipices around St. Gall" (*Latin Hymns*, 205. N. Y., 1875). This "Notker Vetustior" is claimed by March to have been the first to use for the Virgin Mary the popular name *Maris Stella*, which so occurs in the 4th line of his hymn *De Nativitate Domini*. Some, however, have claimed an origin for the name as early as the 4th century, ascribing to that date the anonymous hymn beginning

Ave maris stella,
Dei mater alma.

This Notker whose thoughts were so stirred by "those who gather samphire—dreadful trade," is to be distinguished from a slightly later monk of St. Gall, Notker Labeo, who died 1022, whose translations from the Psalms and from Latin and Greek authors form early monuments of the Old High German.

the German, sent him as his ambassador into France to his brother Charles the Bald; on which journey Strabus died, 849, *fide* his own scholar Ermenric.

Strabus' poem indicates much familiarity * with Latin authors; parallel passages are exhibited by Reuss from Lucretius, Vergil, Ovid, Columella, Pliny, Sammonicus and Plinius Valerianus.

He describes 23 plants, all such as were represented in Charlemagne's garden, either in Cartulary or Breviary, and including his three ornamental flowers, "Gladiola, Lilium et Rosa," beginning with sage, his "Salvia" or "Lilifagus, dulcis odore, gravis virtute," which Perpetuo viridi meruit gaudere juventa.

Longest of his descriptions is that of his "Cucurbita," or gourd, 52 lines; shortest his "Raphanus," 5 lines.

A closing apostrophe † to the lily and the rose is followed by

* Strabus himself says his poem rests upon current knowledge—*opinio famae vulgaris;* on far-sought reading in ancient books,—*quaesita libris nec lectio priscis;* and on "labor et studium" in behalf of which he had deferred the regular business of many days—*ocia longa dierum.* He begins

Plurima tranquillae insignia vitae,—*i. e.*

"Many the trophies of a tranquil life may be, and not the least is this [plant-knowledge], if one given to the Paestan art discerns how to treat the workings of the hid garden-god—*curas tractare Priapi.*"

† Among the flowers described with most evident enthusiasm in this early flower-poem of the new west, are the lilies;

"Not Parian marble, not nard in its odor,
Rival our lilies;"

and his *Gladiola*,

"Bearing to me the beauty of purple blossom,
Pleasant offerings of dark violet in early summer."

But he writes *con amore* of his *Rosa* especially;

"Since Germania attains not the Tyrian shell, nor can broad Gallia include within her bounds the glowing murex, precious here blooms the branch of the rose, and adds its yellow flowering yearly and its purples, fruitful only of blossom;—rose which is said to have surpassed all beauties of plants in virtue and odor, so by right it is held the flower of flowers—*florum flos.*"

Afterward, comparing the beauty and ecclesiastical significance of roses and lilies at length, he says of the lily,

"Virginity shines in the flower, victorious in her blessed fame,

and finally compares the flowers in these words:

"Pluck roses in war, but in peace gather glad lilies,"

and

"Highest victors' palms grants our church to those through the ages
Who pluck in the blood of the martyr the gifts of the roses,
And who bear glad lilies in the whiteness of their shining faith."

dedicatory verses addressed to "Grimalde pater doctissime," and written it would seem after Grimoald's election as Abbot of St. Gall in 842, as Strabus speaks of "his mastership there of that school of pleasure," "schola laetabunda tuorum."

To the student of Asters, Strabus is of chief interest in his description, lines 358–367, of his Agrimonia, by which Argemonia is meant, and for which he also uses the name Sarcocola, as Marcellus Empiricus had done four centuries before, and with the same application to the healing of wounds. The manner of Strabus' reference leaves no doubt that he meant one of the poppy kind, an Argemonia (not Argemon, *i. e.*, an Aster) and may be accepted as interpreting Marcellus' use of the word also. Strabus begins (in translation);

21. Agrimonia. "Here also Sarcocola clothes the fields abundantly which it is scattered over, and there grows discovered under the shades of neglected woodlands, easy to discern in its ranks of beauty." *

Its uses for pain in the stomach and for healing wounds fill out the other lines.

Strabus describes only two or three Compositae, Absinthium, Abrotanum and perhaps Ambrosia. Absinthium receives one of his few touches of description:

> "Next the shrubs of sharp Absinthium demand place,
> Simulating the mother of herbs with slender twig.
> In the leaves is a different color, on the branches another odor,
> The hairy branches,—and of taste far bitterer its draught."

Abrotanum is similarly described:

> Nor less is one prompt to admire the Abrotanum,
> Its tall hairy shrubs,—and what beard one beholds
> In its branches' wealth, imitating a diffusion of tresses.
> These odorous locks, plucked with their slender stem,
> Avail much to mingle with Paeonian remedies.
> It quenches a fever, it flies a weapon, it gladdens the limbs,
> It quells the uncertain injury of the hid poison-drop,
> It has as many powers besides as the threads of its tresses.

His *Ambrosia* is identified by some with *Artemisia campestris* L.; by others with *Chenopodium Botrys* L., because Dioscorides, describing this his Botrys, adds that the Cappadocians call it Ambrosia or Artemisia.

* "Ordinibus facile est discernere pulchris," an echo of Vergil's remark of *Aster Amellus* L., "facilis quaerentibus herba."

His *Herbarum mater*, line 181, is a name for motherwort, or mugwort (*i. e.*, midge-wort), *Artemisia vulgaris* L., and is so used for Artemisia by Macer Floridus, perhaps in quotation from Strabus.

XXXVIII. MACER FLORIDUS

Macer, a writer known (since 1500 only), as Macer Floridus, or "Macer of the Flowers," was the chief mediaeval poet of plants, and though not a brilliant poet, still a faint star wins our notice if it shine alone. His identity and nationality have long been a disputed problem. Evidence now indicates that he was a Calabrian Greek,* perhaps of the name *Μακρόν* "great," by birth, by profes-

* *That Macer was a Frenchman* was claimed by Haller, followed by Choulant and Lacroix, from Macer's use of the plant-names Gaisola (but Gaisdo in best MSS.) for Isatis, Maurella for *Solanum nigrum*, Jusquiamus for Hyoscyamus, Paratella for Lapathum; and Gingiber. Lacroix believed his date to be about 800.

That Macer was a Salernitan of about 1130 A. D. was maintained by Renzi (Collectio Salernitana, 1: 213) showing that the preceding names were all in use in Italy as well as in France; and that many of Macer's lines are to be found in the poem the *Regimen Salerni*, 1101.

That Macer was an Unteritaliener or from southern Italy was claimed by Meyer, 3: 429+; agreeing in part with Renzi; and adding the following proofs of Macer's origin from *Unteritalien* or Magna Graecia. 1. Macer was familiar with Graecisms, and used certain peculiar plant names of Greek origin and of current use in Magna Graecia, as *Brassica*, and apparently *Elna* and *Lolium*; as well as using other Greek words incorporated into his Latin, as *cacostomachon*, *incaustum* and *sciasis*. Hence the rhetorically-minded formed a low opinion of his work; Watt, for example, calling it "a barbarous and jejune poem"; echoing Pulteney who had termed it "a barbarous poem" and a "jejune performance." 2. Macer shows a knowledge of ancient Greek as well as of Roman writers which Meyer thinks that no one then in France possessed; he cites Pliny twenty times or more, and Palladius; and among the Greeks, Dioscorides, Galen and Oribasius. 3. Macer's attitude to Greek mythology is such as to suggest a Greek nativity. 4. Macer's lines are often woven into the *Regimen Salerni*, suggesting that he was of the Salernitan school or of its neighborhood, and that his writings were thus easily accessible to the Salernitan masters who compiled the Regimen.

That Macer's Magna Graecian home may probably have been in Calabria I would add in view of the proved greater permanence there of ancient Greek words, idioms, myths, folk-lore and superstitions. Their survival among the Magna Graecians of Calabria through a thousand years of Roman domination to the time of Macer may seem incredible to some; but it would not have seemed so to Symonds, who remarks (Renaissance in Italy; The Age of the Despots, 47) "By the term Roman I wish to indicate the indigenous Italic populations molded by Roman rule into homogeneity. The resurgence of this population and its reattainment of intellectual consciousness by the recovery of past traditions and the rejection of foreign influence" followed. More than that 6th century "resurgence" of this suppressed Greek population has now been demonstrated, in fact a survival through another thousand years to the present day. This is meant, not of the Albanian colonists in southern Italy, nor of derivatives from the Byzantine exarchate of

Ravenna under Narses, 542 +, nor of the "thema of Lombardy," 915 +, under Basilius Macedo of Byzantium; but is claimed for Calabrians, especially those of Bova as surviving essentially unchanged in their mountain strongholds since a half-millennium B. C. A similar survival of Greeks in some parts of Sicily is asserted as a certainty by the folk-belief of modern Greece (*Attica*). For Calabria its proof rests upon the labors of Domenico Comparetti, Giuseppi Morosi and Astone Pellegrini, and upon the *Studi sui dialetti Greco-Calabro di Bova* of the latter; promptly made known to the English world in 1886 by the Countess Martinengo-Cesaresco, in her essay on "Greek Songs of Calabria."

An example of Calabrian survival is *μάχαιρα*, a knife, in Greek from the Iliad to the Klephtic songs; *maheri*, a poniard, Calabria and Sicily still, wholly different from *pugnale* and *stiletto*, normal Italian for poniard, or from *coltello*, a knife.

So *ὁ ἥλιος βασιλεύει*, the sun sets (literally, the sun kings itself, the sun puts on its purple), in popular Greek to-day and especially in the old Klephtic songs (*Attica*); pronounced *o eél-yos vas-i-lév-ee;* the same expression survives current in Calabria as *o iglio vasilèggui;* of world-wide difference from the Italian for sunset, *tramontare del sole.*

That Macer's date was in the latter half of the 9th century was claimed by Meyer. Renzi, observing the identity of some lines in Macer and in the *Regimen Salerni*, inferred that Macer borrowed from the latter; but Meyer discreetly remarks that the aphoristic form of the lines in the *Regimen* is that naturally secured by condensing from Macer, rather than the reverse. 2. The way in which Macer's lines are used in the *Regimen*, date 1101, suggests that he was then esteemed an antiquity, and a matter of common property for writers of his school. 3. From Macer's many citations and from their manner, Meyer "cannot forbear to hold him earlier than the Salernitan school," meaning earlier than the time of its definite provision for instruction under Constantinus Africanus, c. 1070 A. D. 4. Macer is first mentioned by name by the ecclesiastical chronicler, Sigebert Gemblacensis, who wrote 1030–1132, who says "Macer scripsit metrico stilo librum de viribus herbarum," and who places him among older authors, between one of the 5th and one of the 6th centuries. Evidently Macer did not live near Sigebert's own period, but was to him simply known as an antiquity, and of some period since Rome. 5. The latest writer cited by Macer is Strabus who died 849 (and wrote in or after 842). Placing Macer's date as far from Sigebert as possible will therefore make it about 850.

Macer's name is cited in *Circa Instans* as *Macro*, and *Macron*, hastily interpreted as *Macrobius* by some readers, as Bartholomaeus Anglicus. As *Macron* the name appears in one Florentine 14th century MS. *Micron* still occurs occasionally in Athens to-day as a family name. Were the form *Macron* merely an assimilation from his original name, we might have supposed the original form to have been an ancient Macar (=Eng. *Bliss*), classic Greek *μάκαρ*, happy, blest; late Greek, *μακάριος*, name borne by the elder and younger saints Macarius of Alexandria, monks who died 390 and 394 A. D.; and by St. Macarius, patriarch of Antioch in the 7th century; all founders of so-called Macarian systems; and borne by Macarius, a monk of the 8th century at Monte Pinnatensis in Aragon, writer of lives of the saints. Were his name traceable to Latin only, it might have represented L. *macer*, meagre, or L. *macēria*, a wall, *maceriatus*, endorsed, which last may have given rise to the province *Macerata* in southern Italy.—Leaving his native Greek hills and becoming a Salernitan physician and student of the classics, he may have chosen, in adopting a Latin name (as Strabus and other contemporaries did), simply to alter its form to the accepted Roman name representing it, the name Macer, with the knowledge that this had been already made honorable as the name of a poet of plants, as well as of a historian, a Roman governor, several other poets, etc. See *supra*, p. 133.

sion a Salernitan physician,* and serving later, it may be, under Lothair I., King of Lotharingia and Italy; whose domain included Brabant, the region from which we first hear Macer mentioned. He seems to have written his poem in or shortly after 850, which is as distant a date as can be assigned it from the time of its first mention, about 1100, when his date was already thought to be indefinitely ancient.

Macer's poem *De Viribus Herbarum* † consists of 2,269 Latin hexameters, treating 77 different plants; besides 20 spurious chapters, of 487 lines, including 12 more plants and some animal and mineral remedies, as Fel, Alumen, etc. Among these spurious chapters, two classes are distinguished by Choulant; an addition earlier than Matteo Silvatico, 1313, including *Aaron, Bryonia, Alga palustris;* and a later addition, including *Quinquefolium* and *Sambucus.*

* A physician, but a layman, Meyer deems Macer; from his use of his mythological knowledge; remarking that "in Salerno before 900 A. D., and in other places in southern Italy, a physician could obtain high standing though outside of the priesthood;" whereas in France, the successful physicians were such as the Bishop of Amiens, and in Germany the Abbots of Fulda and Reichenau. Reasons for thinking Macer a Salernitan physician include also the character of his poem, indubitably intended, says Meyer, for the publicity afforded by that school, as shown by the poet's professional striving for effect, and certain mannerisms of his verse. The names of few Salernitan physicians are known previous to 900; perhaps 5; though medical learning is thought to have had its seat at Salerno from c. 500 onward. Until 839, from Zotto, 571, Salerno was subject to the Lombard Dukes of Benevento; in 839 Siconolph of Salerno became an independent prince; Macer may have studied at Salerno as early; in 848 and 856 "Josephus *medicus*" bought real estate in Salerno, and in 855 "Josan *medicus*," as shown from documents first by Renzi; they may have been fellow medical instructors with Macer, and as Jews, examples of the liberality prevailing there of which Macer as a layman was also himself an example, and examples of which liberality were the subsequent instructions given there by "Abdena Saracenus, Solonus Ebraeus, Tetulus Graecus, and Michael Scottus," and others of foreign birth, A. D. 980–1200. The next Salernitan physician known by name was probably a Lombard, Ragenifrid, who in 900 persuaded Prince Waimar of Salerno to give real estate to the Benedictine cloister at Salerno; the Prince giving this "for the health of his soul and at the persuasion of his physician Ragenifrid and his father-confessor the priest Ermenald." So here again the functions of physician and priest were still separate at Salerno.

† *First printed*, Naples, 1477, by Arnold de Bruxella; again, 1482, at Milan by Zarotus Parmensis; numerous editions followed, 20 being enumerated by Choulant (followed by Pritzel) ending with 1590, after which came only Choulant's critical edition, Leipsic, 1832. The most noted editions before were those of *Atrocianus*, Basle, 1527, of *Cornarius*, printed by Egenolph, Frankfort, 1540, and of *Pictorius*, Basle, 1559. Woodcuts began to appear first in the 1482 edition; a copious commentary by

Guillermus Guerualdus Cadomensis, physician and professor of medicine at the University of Caen, accompanied the Caen edition, 1509.

Translations have been made into Polish, French and English; the Polish by Lovicz, professor of medicine in the University of Cracow, who added notes, woodcuts, and this translation, to his rearranged alphabetical Macer, Cracow, 1537.

The French translation, "par Lucas Tremblay," entitled "Les fleurs du livre des vertus des herbes ... par Macer Floride," with the commentary by Guillaume Gerouult, and with figures, was printed at Rouen, 1588, 8vo, but the translation extended only through the first seven chapters; to which an ophthalmic remedy was added and a description of Nicotiana (*Pritzel*).

A MS. English translation (in Bibl. Sloane) was by John Lelamar, master of Hereford school about 1373.

The printed English translation, a 12mo. later than 1535 (*Pritzel*), bears the title "Macer's Herbal, practysed by doctor Lynacro, translated out of Latin into Englysshe, with [additions] shewynge theyr operacyons and vertues set into the margent of this Boke, to the entent you might know theyr virtues." This phrase suggests its translation from the French edition of about 1500, which ends with a woodcut of a monk writing, and with the words "Herbarum varias qui vis cognescere vires Macer adest disce: quo duce doctus eris," *i. e.*, "Macer is at hand, to teach you, you who wish, to know the various virtues of herbs; with him leading you, you will become learned."—This translation by Lynacro or Linacre bears no date, but merely the statement of imprint by Robt. Wyer, dwelling "at the signe of St. Johan Evangelyste, in seynt Martyn's Parysshe, in the Bysshop of Norwytch's rentes, besyde Charynge Crosse" (*Hoefer.*) Another edition was of 1542.

The oldest collated MSS, fide Choulant, are of the thirteenth century; of which one, κ, at Leipsic, begins "Incipit Macer de naturis herbarum"; the two others have no name or title except as recently added; nor do all of the MSS. of the fourteenth century possess a name, although two, ε and ζ of Choulant, have the title *de virtutibus herbarum*, and bear the name Macer. The Florentine MS. mentioned below bears the title *Liber Macronis*. The title now used, *Macer de viribus herbarum*, rests on older authority than any MS. however, being that cited by Sigebert Gemblacensis, before 1112. Choulant describes twelve known MSS., the latest being written 1508 by young Simon Steyn of Penig, who received his MD degree the year following. *The name Aemilius* occurs coupled with Macer on no MS., and was evidently first joined to this Macer in half-knowledge of Aemilius Macer the Roman poet of plants and friend of Vergil (see *supra*, p. 135), and first by the editor Atrocianus, 1527; after which most editions bore the name of Aemilius Macer; as those of Lovicz and of Pictorius. *Macer Philosophus* was the title by which the rare *editio princeps* named the author, 1477; and so in that of Vienna, 1506. *Macer Floridus* first appeared as his title in the supposed third edition, in France about 1500, but without note of place or time; the first dated edition bearing this name is that of Paris, 1511.

A Florentine MS. of Macer, written in its 77 chapters in a small Italian hand of the 14th century, not known to Choulant and said to have been early in the Library of San Marco, Florence,—is of peculiar interest because illustrated, and has recently come to America, into possession of Mr. Oakes Ames, of North Easton, Mass., who has kindly given me some items of information regarding it. It seems to lack all the so-called spurious chapters and about 115 of the lines accepted as genuine by Choulant. Its 56 colored illustrations are added upon the margins and at the end of the whole; and were pronounced by an English bibliographer to be "far more accurately delin-

Macer's work is largely wrought out of Pliny; in next degree, from Galen; a little from Dioscorides, Oribasius and Palladius; and from many ancients as Hippocrates, Diocles, Xenocrates, etc., who may have been known to him only through Pliny. Other ancient writers, as his Asclepius, were evidently known to Macer not through Pliny but through their own MSS. or in some way unknown to us. Choulant lists 23 classic writers cited by Macer; all Greek, except Cato, Pliny, Palladius,—and Strabus.* Perhaps his citations of Justus, Menemachus and Melicius are the only citations of these authors known; the others among his rarer sources are mentioned by Pliny.

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eated" than the woodcuts of herbals like the Ortus-Sanitatis, a century or more afterwards. This MS. is further notable for its containing also 14 brief chapters on the nature of herbs, differing from those of the *Circa instans*, written chiefly in Italian, and beginning "Cucurbita salvaticha erba."

Many other MSS. of Macer exist in Europe, in the British Museum, etc., etc., which were not collated by Choulant, some of which he refers to as ascribed to the 11th century.

Names of redactors are borne on four of the MSS.:

Odo Veronensis, unknown otherwise; in a prose abstract of the 13th century, of which he was probably the author.

Odo Magdunensis, of Mehün, unknown otherwise, on a Dresden MS. of the 14th century.

Odo Muremundensis, on a 14th century MS., the Cistercian monk, Otto von Murimont, in Burgundy, who died 1161; once Abbot of Beauprai.

Albert de Aulica, Dominus, on a Wolfenbüttel MS. of the 14th century. This may have been the name not of the redactor or the scribe but of the master for whose use the scribe had prepared the MS.

Of one of the preceding the learned Merula (born at Dort, 1558; d. 1607) writes in his *Cosmographia generalis*, 1605, "Aemilius Macer elegantissime de herbis scripsit. Sed hic libellus qui sub Macri nomine circumfertur, non hujus est, sed Odonis cujusdam medici, ut ipse vidi in codice quodam antiquissimo. Verum ut gratior exiret in lucem, Macri titulo inscriptus est." But this Odo was doubtless redactor only, and later than Sigebert who cites Macer as name of the author. The redactor was yet credited with its original authorship as late as 1790, when Pulteney wrote, "It is ascribed to Odo or Odobonus, a physician of the later times, and probably a Frenchman."

* Macer cites Strabus only under his Ligustica, lines 900 and 906, and in a way that implies that Macer had access to a MS. of Strabus' Hortulus after Strabus' death, when Macer could in no way satisfy his curiosity as to Strabus' source. Strabus' lines 228–233 on his "Libysticum, Ligusticum or Levisticum," render as follows: "Delaying among the odorous branches, a lingering love of the little garden persuades to recount the strengths of Libysticum. This shoot although by its juice and by the odor of its sprouting buds it is held to oppose the eyes and to inflict shadows, yet they often add its little seeds to their searched-out cares (prescriptions), and deserve fame with a different praise."—Macer's 25 lines on *Ligusticum levisticum* L., are in part derived from

Pliny, 19, 50 and 20, 60; but Pliny, after remarking that "Lovage grows wild in the mountains of Liguria, its native country, but at the present day it is grown everywhere," says little else of it, and gives only three medical values to it, "for the stomach, for convulsions and for flatulency."—Macer on the other hand assigns it the following curative powers: "for flatulent stomach; for all interior diseases," *i. e.*, digestive; urinas movet; menstrua purgat; for all venomous bites, if taken in wine, and if the plant, well-rubbed up, be bound on the place; for colic, both in drink and bound on; especially the elixir from its root, to drink for colic and for all the before-mentioned; and its seeds, which possess "*peptica virtus*, is well added to all digestive remedies." Apparently the whole of this is taken by Macer from his own knowledge of the practical value of this native Italian plant, which he may have been always familiar with in its garden state (sweeter than the wild but less powerful, *Pliny*). The wild plant Macer probably saw also in its native luxuriance, during sojourns in northern Italy; for Macer's introductory statement that "Ligustica takes its name from its native land among the Ligurians, because greater abundance of this herb is produced there" is no copy of Pliny's statement and has the air of a visit to its native habitat.—So far Macer writes as if sure of his facts from personal knowledge. Then he adds the differing properties he had found in Strabus' MS. saying "This plant is harmful (*nociva*, a very rare word) to the eyes, asserts Strabus, both in drink and in odor, yet he directs its seed should be mixed in antidotes; whether he could have said this from himself or from books of the learned is not known to me; this I know, that the ancients with no small praise have extolled this very herb, nor do I recall that I have read anything, such as is ascribed to it by the discourses of Strabus." The following conclusions seem to follow; that Macer knew the plant lovage well, in medical use and probably not only in gardens but also in its native Liguria; that he knew well a wide range of ancient authorship on the plant, including probably Pliny, Galen, Oribasius; perhaps he had Cratevas in his hands and found in him (where he calls lovage "cunila bubula,' as quoted by Pliny, 20, 61, 60; 19, 50) the same statement which Macer makes of the use of lovage for snake-bites; probably he had other ancient writers not known to us. Then, perhaps after writing his poem, Macer, who cites no other recent author, finds a MS. of Strabus' Hortulus, is surprised at its ascriptions to Ligusticum and adds them to his poem under a protest which implies that Macer wished that Strabus were yet alive and able to tell him of his source for such unexpected statements.

How came Macer to know Strabus' MS? Not in the ordinary way of the monk turning over the accumulated MSS. of his cloister, if Meyer is right as he seems to be, in deeming Macer a layman. Not at a time remote from Strabus' death, when diffusion of copies of his MS. might be supposed to have brought some to that southern part of Italy, recovering by 915 A. D. from the burning of libraries in 884, etc., by the Saracens; though perhaps no MS. of Strabus' ever actually travelled so far. Instead, Macer seems to find the MS. soon after Strabus' death, when the MSS. were probably rare then as now. This points to exceptional opportunity enjoyed by Macer, probably as occasional or permanent court-physician; and to a court which brought him at some time within range of Strabus' life on the Rhine or of his death while ambassador to Paris. With the death of Charlemagne's son and successor Louis le Debonnaire in 840, the empire had been parted between his sons Louis the German, Charles the Bald of France, and the eldest son Lothair, whose kingdom, Lotharingia, was a narrow strip including Italy from near Gaeta northward, with Provence, Burgundy, Switzerland, Alsace-Lorraine, Belgium, Friesland, etc. Of these three divisions of Charlemagne's empire, did Germany allure Macer out of Italy? I see no probability, for its ties to Italy were then but slight.

How much Macer revered the authors he quoted we may infer from his scrupulous regard for their utterances, and from his manner of mention of Hippocrates, whom he calls, *Ippocras, medicinae maximus auctor* (508); of Dioscorides, whom he elevated to distinction by an Ipse—*Ipse Dioscorides ait*, 1628; and of Palladius, whom he calls *peritus*, 802, saying of rose-oil, "I will quote what Palladius wrote of it, Palladius the skilled,"—

Dicam Palladius quid scripserit inde peritus.

With Pliny, "Galienus," Oribasius, and Asclepius he used the appellative *auctor*, evidently a mark of great dignity. The one Latin whom he quotes besides Pliny and Palladius, Cato, he refers to as *Romanus Cato testator*, 1205; words however strange on the lips of one who also felt himself a Roman, very natural for a Calabrian

Was he in service of France under Charles the Bald's long reign, 840–877, as ambassador to whom Strabus died, in 849? and did Strabus carry a copy of his Hortulus with him the French king's court, there soon to be seen by Macer, though too late for conference with its author? and so did Lacroix's assignment of Macer to the France of Charlemagne have this measure of justification? This may yet prove true; but the French chronicles might be expected then to have mentioned his name; the French court was a fairly continuous court, till near Hugh Capet's accession, 987; yet the first chronicler to mention Macer, Sigebert of Gembloux, himself esteemed a Frenchman, and living 1030–1112, knew nothing of Macer as Frenchman or French court physician, catalogued him as if living 500 A. D., and evidently knew only the poem, not the man. Therefore if Macer knew royal favor about 850–860, it seems more likely to have been not in France but in that transient kingdom of lost chronicles, Lotharingia, under Lothair I. (born 795), 840–855, and his sons Lothair II. (of the northern portion), 855–869, or Louis II. (King of the southern only till 869), till 875. Macer may have passed from Salerno into service of Lothair, after that king was thrust back into Italy in 843 (Salernitan physicians were in request at courts), and may have accompanied him northward to his strong cities of Metz, Verdun, Brussels, or Antwerp, and at some one of these already old cities that MS. of Macer may have been preserved which gave Sigebert his knowledge of his name, Sigebert's own home at Gembloux being not far from Brussels, and within Lower Lorraine. Meanwhile Macer's knowledge of Strabus' MS. may have been obtained during such northern journeying; as while at Metz or passing up the Rhine to Basle (which did not become a part of Germany till 1032) or passing farther up to St. Gall, where the MS. lay in 1512, and where Macer may have seen the very MS. sent by Strabus with his dedication to Grimoald, still Abbot of St. Gall, 842–872. And if Macer's public life was under Lothair or his sons, the lack of record of it is explained by the lack of almost all records, consequent on the convulsions attending the breaking up of that Lotharingian kingdom in 875 on the death of the childless Louis II., and the subsequent disintegration of that northern part where Sigebert Gemblacensis originated, then rent asunder from the ancient capital at Metz into the numerous duchies of Brabant, Limburg, etc. In this way Sigebert may have found some MS. of Macer derived from one at Metz, but yet may have known nothing of his personality.

who never forgot the Greek blood in his veins. Another for whom an epithet is used by Macer is *Thebana Olympias* or *Thebanis Olimpias* (1278), a Theban authoress on medicine mentioned by Pliny, Pollux and Plinius Valerianus, and from whom Macer cites three lines on Malva apparently at first hand. Local appellatives like Theban are rare in Macer, and the Greek divinities appear by the bare name only. One other reference to a Greek occurs with his line 2034, under Cicuta,

"Great Socrates perished by hemlock,"

where his *magnus* seems as satisfying as it is natural. He makes it evident also that those Greeks who wrote copiously of plants commanded his admiration; mentioning that Chrysippus had written a whole book concerning the powers of Brassica, and Themison one concerning Plantago.

Macer was in great repute during the middle ages. He was first mentioned by Sigebert Gemblacensis, 1030–1112 (as already indicated, p. 197). About 1101 his poem was used, as if Salernitan common property of unnamed origin, in the composition of the poem *Regimen Salerni*. Matteo Plateario, who died 1130–1160, cites Macer often. A copy of Macer found its way to Denmark and was used in the next century by Henrik Harpestreng,* who died 1244, as basis of his *Danske Lägebog* on 115 plant remedies. Citations from Macer occur often in the works of the great encyclopedic compilers who immediately followed Harpestreng; as in Bartholomaeus Anglicus, c. 1256, Vincent Bellovacensis, who cites 51 of the 77 chapters, and Matteo Silvatico, 1313. About 1373, Macer was translated into English by Master John Lelamar, of Hereford School.

* Henrik Harpestreng, of Denmark, whose gravestone, *fide* Meyer 3: 537, tells us all we know of him, that he was canon of Roeskild and died 1244. A Danish MS. by him was discovered in the Danish Royal Library and was published by Molbech at Copenhagen, 1826, as the "Danske Lägebog," etc.; a rare octavo of 206 pages (ex. bibl. Meyer, Dresden and Goettingen). Molbech deemed it a prose version of Macer Floridus. Meyer shows that it is more, differing in arrangement from its basis, Macer; including all of his plants except Isatis, but adding 18 mineral or animal remedies, and adding 39 plant remedies, remarkable for their number of exotics, and including "Eupatorium," but adding no other composite; introducing in his 2d book, "Boraga," and "Basilisca or Gentiana, Skaersetae" also Marochus (see *infra*, p. 211). Harpestreng gives no descriptions; and synonyms seldom. Each chapter begins with the Latin name used by Macer, and its Danish equivalent.

The 77 genuine chapters follow no definite order, but begin with familiar garden plants, with the three Compositae, Artemisia,* Abrotanum and Absinthium, and end with foreign drugs, as Gariofilus (cloves), Costus and Aloë. Each plant is given usually 20 lines or more, chiefly of its properties; sometimes much longer, Sinapi (mustard), Caulis (cabbage), Ruta, Betonica, Plantago, Elleborus albus and Absinthium, each exceeding 60 lines. Sometimes a few descriptive touches indicate Macer's personal enthusiasm; as the following:

"XXI. *Rosa.*—I have said the flower † of flowers among us by right is the rose, because in beauty it surpasses all flowers, and in odor. Nor yet does this flower avail to delight us in beauty or odor so much as it avails by its aid in varying medicines.

"XXII. *Lilium.*—Golden roses,‡ as I think is fitting, should be followed § by the silvery lilies, which neither in beauty nor odor are deemed to yield place, if compared to the grace of roses. Nor less in its many healings is it fit for the needs of men. The bulb of that root which produces the lilies, roofed under burning coals, and grated together with the olive, is a wonderful remedy if superadded to the burns from a fire; and yet better if rose-oil be joined with the olive.

"XL. *Viola.*—Not the grace of roses can pass, nor can lilies, the fragrant violets in beauty, nor in power, nor in odor.

"XLIII. *Iris.*—The very color of its flowers gives the name to Iris; indeed like the colors of heaven are the colors of Iris."

Occasionally Macer makes mention of habitats, as

XVIII. *Acidula* (= Sedum).—Crescit arenosis in pratis et secus amnes.

Occasionally he refers to an incident or tradition, as Galen's story of the boy with the peony-root amulet hung from his neck, lines 1618–1627; and that of Alcides (Hercules) crowning himself with dill (Apium), lines 334–5.

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* The *Arthemisia* of Macer's MSS. and of most mediaeval writers.

† *Flos florum* in Macer; Strabus' *florum flos.*

‡ Aurosas ut credo rosas argentea debent Lilia, etc. Geroult, 1509, first explained this as from *aurum*, *i. e.*, golden.

§ Pliny, 21, 11, says, "The lily holds the next highest rank after the rose." Strabus, writing of the lily as a type of the Virgin Mary, ranked it above the rose.

MACER'S MAGNA-GRAECIAN NAMES

Usually Macer begins each new plant with two or more lines stating its Greek name as well as its accepted Latin name and sometimes a third Latin or Greek name of popular use; introducing the alternative name, the Latin name, by *latine*, *nos*, *nostri*, or simply by *dicimus*; or the vernacular name by *vulgi more*, *vulgari more*, *nostri vulgariter*, or by *nostra lingua*, *vulgi lingua*, or *romana lingua*; but never by *Italico sermone*, a phase first used by Arnobius Afer, about 295 A.D., and then used of Latin; occurring later in the sense of Italian, after Macer's period. His Greek names are usually introduced by *Graeci dicere*, *Graecus vocat*, *Graece dicitur*, or *Graeco sermone*; but of some he makes his reference to the Greek mainland positive by saying *Attica dicere*, *apud Argos*, *Argi* or *Argivi vocant*. Three of the Greek names cited by Macer were names, Meyer suggests, which he was accustomed to in his youth, hearing them as current Greek names in Magna Graecia. They are Brassica, Elna and Lolium (see note, p. 196). Line 1201 reads

> Caulis romanæ, Graecorum Brassica lingua
> Dicitur.

A native Roman might have said "Caulis vulgariter, sed Latine Brassica." To most men using Latin, Brassica would have seemed the more natural term and as much a Roman word as Caulis (whence our *cauliflower*). Cato, Varro, Cicero and Pliny had all called it Brassica. But its name among the Greeks of Magna Graecia was βράσχη or βραισσίχη, as we know from express statement of Hesychius,* and as Macer seems to have known by his early nurture. βράσχη did not occur in classic Greek at home, *de* Hesychius, and Dioscorides used instead κράμβη, Theophrastus ἄγριος.

The Magna Graecian form βράσχη has given direct form to the Italian *brasca*, a cabbage, though the Latin *caulis* has supplied the name in recognized use, *cavolo*.

* Hesychius, the lexicographer, who wrote his lexicon at Alexandria perhaps about 400 A. D. It represents the surviving portion of the great lexicon in 95 books wrought out at Alexandria by the school of Aristarchus, about 150 B. C.

Elna, 1489, is probably a Magna Graecian idiom; as suggested by Macer's manner of reference,—speaking of *Inula Helenium*:

> Enula, quam Graecus Elnam vocat Eleniumque
> Dicitur a medicis, est forma cognitis cunctis;

i. e., "Enula, which a Magna Graecian calls Elna* and which by the physicians [using the Attic Greek learned from books] is called elenium—Enula is of form familiar to every one."

Lolium, 2015, not known to the Greek dictionaries; Macer probably derived it from the speech of Magna Graecia.

> Frumentis nocuam Lolium Graecus vocat herbam,
> Quam nostri dicunt vulgari more Nigellam;

"By the name Lolium the Grecian calls that noxious herb among grain which our Romans in their common speech call Nigella, *i. e.*, the dark seed in the wheat. Lolium, so named by Plautus, Vergil and Pliny, might have been thought a Latin root were it not for Macer. It has given rise since to Ger. *lolch* as well as its genus-name *Lolium* L.

Barrocus, 1642; for *balm;* apparently Magna Graecian. See p. 211.

Strignum, 1918, Macer's form for the Greek Strychnos (of Dioscorides), may have been a Magna Graecian variant;† (name of *Solanum nigrum* L. and sometimes of *Atropa Belladonna* L.).

Strucion, 907, may have been a Magna Graecian variant for Struthion, still more often in his time varied into Ostrutium (for *Imperatoria Ostrutium* L.).

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* Probably not from this Elna but from the more widely used standard form of the word, Helenium, came its mediaeval French names Alne and Augne. I find that the two latter occur, cited as equivalents for "Enula campana," in an old French glossary of plant names, "Les noms de medicinel." This glossary forms part of a codex at Turin (Bibl. Naz. di Torino; Cod. L. IV. 25) written in French in a 14th century hand, and ending with the *Antidotarium* of Praepositus and with Plateario's *Glosse*. The MS. is yet unpublished, but specimen pages were reproduced in phototype on Tav. 8 of the *Atlante* accompanying Giacosa's *Magistri Salernitanae*, Turin, 1901.

† I also find the name in the form *strignos* in a 12th century Cassinese MS. of Turin, an unprinted *Liber Dioscoridis ex herbis femininis* (see Giacosa's *Atlante*, Turin, 1901); and later the form seems to have been frequent in Italian herbals; due apparently to use of the word in the form *strignos* in Magna Graecia, and its spread thence to Monte Cassino and Salerno. One occurrence perhaps earlier than Macer appears in the Marcelline Botanicum, which has a figure labelled *stignos*, in a 9th century hand, but probably copying (accurately?) an earlier original.

MACER'S LATIN FOLK-NAMES

Macer is perhaps of greatest value in these references to plant-names, especially those of popular use; and in his folk-remedies, for that source seems the explanation of many of his prescriptions. That quite a number of examples of amulets or of other forms of credulity are to be found in his pages is to be expected; but they are few in comparison with Pliny. Among Macer's Latin names of popular use are these:

Pes pulli, chicken-foot, for the plant he says is called Portulaca in Latin, Andrachne in Greek, Pes pulli in the common speech: c. XIX.; meaning our *Portulaca oleracea*, formerly known in Germany as *Hanenvot*, *Hanenvoed*, *i. e.*, *Pes pulli* or *chicken-foot.*

Paratella, c. 63, 1993, for Latin *Lapathum*, a Rumex; in Spanish known as Paradella, in Fr. as Parelle; a word of Gothic, Lombard, or Frankish origin? occurring again in a 15th century MS. at Padua, the "Erbario di Padova" (see *Giacosa*, 447) as *Patella sive Paratela*, and as *Patella sive Piratella.*

Maurella, c. 60, line 1918, folk-Latin; Maurella, Maureola and Morella, in MSS. of Macer; the Greek Strychnos, our *Solanum nigrum;* which plant is made its equivalent by Matthaeus Sylvaticus, citing Maurella in a line from Macer.

Vulgago, c. 46, for Asarum; Fulbert, 1029 A. D., also has Vulgago; it seems to appear first, a plural, Vulgigina, in Charlemagne's Capitularies, 800 or shortly after.

Others, like the last in not making absolutely their first appearance in Macer, are his Gaisdo for Isatis, Colubrina for Arum, Gamandrea (our Germander) for *Teucrium chamaedrys* L., Caniculata for Hyoscyamus, Lingua bovis for Buglossum, Acidula for Sedum, Eviscum and Altea for Hibiscus or Althaea.

ASTER REFERENCES IN MACER

From Macer, brought up in southern Italy, mention of Aster Atticus and Amellus could hardly be expected, and does not occur as such; but there are signs of fragments of the body of ideas once associated with Aster, which had descended to him and now come up under other names. Consideration of these and of plant-names or beliefs of importance in their relation to the development of

Aster history follows; and first of Anthemis, interpreted by the heading Chamomilla; an abstract of his 42 lines is the following:

"XIV. CHAMOMILLA. Anthemis * is commended with great praise by the author Asclepius †—which plant we call Chamaemelum ‡ or Chamomilla. § This is a very odorous herb and low-growing, similar to that herb which the common people call by its exact name Amarisca || because of its ill smell and bitter taste; so similar that when gathered by itself it can scarce be distinguished in odor from the other.

"Authors say ¶ there are 3 species, which they say are readily distinguished by the flowers alone; there is in all a central golden flower ** (disk), but the flower is girt round with various leaves, white or black †† or of purple color.

"Anthemis proper ‡‡ is described by authors; of which plant the color of the leaves [rays] is purple; this is the larger and stronger. [*Anthemis rosea* DC., *fide* Sibthorp: but the Greek author used by Macer meant to include more? and covered Aster

* "Anthemum" of many MSS.; Anthemium, Anthemion, Anthemidum, etc., in early editions.

† Pliny writes, "Anthemis magnis laudibus celebratus ab Asclepiade"—Pliny, 22, 26. Asclepiades of Bithynia was a celebrated Greek physician, famous for his cures at Rome, about 60 B. C., a few fragments from whom were published by Gumpert, 1794. Some MSS. of Macer read Asclipeus, one Esclepius. Perhaps Macer confused this Asclepiades with Asclepius or Esculapius the Alexandrian theosophist, known as "Scolapio medicus" at Monte Cassino in the 9th century, where a (still unpublished) MS. of his comments on Hippocrates was transcribed. See *Giacosa*, xxii.

‡ Pliny, 20, 26, like Dioscorides, makes Anthemis and Chamaemelum partial synonyms.

§ Harpestreng uses Hwithwith as the equivalent name in Danish. Choulant cites Meghedeblomen, Hundesblomen, Hermeln, Camellen, as its former German names, but now only Chamillen.

|| "Amarisca seu Amarista herba est Anthemis Cotula," Choulant's Macer, 51. Is not this the first occurrence of *Amarisca?* A later occurrence is in the 14th century French glossary, *Les noms de medicinel*, which reads "*Amerosce est Amarusca.*"

¶ "Auctores dicunt species tres." This and the preceding sentence show Macer to be relying on Greek writers for description of plants unknown to him.

** "Est cunctis medius flos aureus illis,
Sed variis foliis flos circumcingitur ille,
Albi vel nigri sunt purpureive coloris."

†† So the MS., *nigri* by mistake for yellow, *melini*, which duly occurs with his Chrysanthemum, the "*crisantemon*" of one MS., *crisantenum* often.

‡‡ Dicitur Anthemis proprie.

Atticus too?] But Leucanthemum is gathered with white leaves [*i.e.*, rays; *Anthemis Chia* L., *Matricaria Chamomilla* L., *A. nobilis* L.; all included in Dioscorides' corresponding white-rayed Anthemis, *Sibthorp*]; with yellow leaves, Chrysanthemum is found [including *Anthemis tinctoria* L.? and perhaps also certain Chrysanthemum sp. of L.].

"Strength to all these is ascribed, dry and *warm* * in the first degree. *Each provokes urine, when drank with wine* as you please; *breaks* [*dissolves*] *stones in the bladder, and purges the menses*, if the matrix be bathed in water in which the herb is boiled; or if the herb is more frequently taken in wine. *Colic* * *it assuages* * *and inflation of the stomach* by its drink is driven away. Scales [warts] it removes from the countenance; if you lay it on powdered alone or worked up with honey. For rheumatism it is of service, its decoction taken; and wonderfully it helps, if taken in drink *for complaints of jaundice.* Taken with wine it is able to *expel the abortive birth.* With this herb, *boiled in oil,* * *you may drive off a chill,** if you nourish the fevered with it; *and the fever* * also often you may expel. Turgid *hypochondria* is oft *purged* from the bowels [*unguine;* for inguine] by such draughts.

"Pestiferous bites of serpents produce no harm if Anthemis is taken, a drachma in weight, with wine. [Said by Cratevas of Aster Atticus. Copied by Macer from some Greek writer; who was speaking of Aster Atticus by name of *purple Anthemis?*]

"Pliny affirms † [where?] that this plant will gradually purge all biliousness, if taken for 40 days, on each day twice, a drachma in weight, with twin cups of a wine thin and white, and accompanied with a lotion.

"*Aegilops or fistula it cures in the eye* if any will chew it up, and then so apply it to the place; so *sordid ulcers it purges.*

"Oft‡ the head of the fevered is wont to boil, aggravated with

* Properties in italics are found in Pliny's account of Anthemis; and also in that of Dioscorides except those followed by the asterisk *.

† Choulant compares a somewhat similar prescription, Pliny, 20, 59, with 35 days' use of capparis, but its details are too different to have been Macer's source.

‡ All of the remainder seems as if Macer's own transcript of experience; derived from the use of Chamomile handed down among Magna Graecian people perhaps; it has no basis in Pliny or Dioscorides. *Exanthema* is classic Greek, and in Hippocrates; *xanthima*, in all Macer's MSS. may be a Magna Graecian form for it. Later editions of Macer correct the *i* to *e* to cast the word in conventional form.

heat, or with gathered humors it develops ulcers within itself; ulcers which the Graecian calls exanthimata. These chamomilla expels,—using the green plant boiled in oil. But if the green plant be lacking let the dry be steeped in vinegar, and let him wash the head with it. And there is no better remedy for the bowels (*ungucn* instead of *inguen*, *MS.*)."

As a whole, this chapter on Anthemis consists of most of Dioscorides' properties for Anthemis taken through the medium of Pliny. Most of the remarks made by either which are not strictly statements of medical properties fail to appear in Macer. Macer expands part of the above matter taken from Pliny and rearranges it entirely; and adds a good deal, perhaps in part from some other Greek writer, and distinguished above by Roman type. The last addition, the use for *exanthimata*, sounds as if made not from any Greek author but from folk-medicine of Calabria. The snake-bite addition may have come to his Anthemis from the related Aster Atticus as original source. The indications suggest that Macer did not, in preparing this chapter, have any copy of Dioscorides' chapter on Anthemis to compare, at least not as ours are now. Neither Dioscorides nor Pliny devote any chapter to Chamaemelum separately; it occurs with them simply as a synonym for Anthemis.

67. PYRETHRUM (= *Anthemis Pyrethrum* L.), in the main quite distinct in Macer's description, lines 2086–2108, but with one remarkable similarity to its relative Aster, its recommendation for epileptic boys as an amulet:

> Suspensum collo pueris prodesse caducis
> Creditur et solo succurrere fertur odore.

51. SENECIO (= *Senecio vulgaris* L.). Macer begins, "Erigeron Graeci, nos Senecion vocitamus"; some MSS. have Senation, and Irigeon; one editor prints Origeron: meaning the Erigeron of Dioscorides 4, 95, ἠριγήρων, *i. e.*, "old man of the spring," from the white pappus showing so soon. Pliny recommends it for the eyes, scrofulous sores, griping pains, and sciatica. Macer's recommendations follow Pliny in the main, using it for tumors and for *struma*; he adds, "some forbid to drink, others, as Pliny, direct it." As if copying from some unknown Greek writer who had blended its properties with those of Aster *ad inguen*, Macer adds,

"its flowers bruised with the leaves and made up with sweet wine, are a very useful remedy 'tumori apponas ani vel testiculorum.'" The belief in its antipathy to iron, like that felt by its relative, Argemon or Aster, is recounted by Macer, with apologies, from Pliny: "*Dig it without iron*, and touch it to an aching tooth thrice, spitting on the ground each time in turn, and then replacing the plant in the right place in the ground; while it lives again, as long as the herb lives, Pliny says, the tooth will never ache more."

XL. VIOLA. Macer distinguishes "three kinds of Viola, different in the flower only, purple, white and black, all almost equal in medical power." His properties are from Pliny and Justus* and Dioscorides; those given by Dioscorides for both Aster Atticus and the purple violet reappear here, Macer saying, "the purple violet they say cures epilepsy, especially among boys; and is a remedy for the eyes, for ulcers, tumor matricis, ani fissuras; and for the stomach, using the green herb or the dry.

L. BARROCUS. Under this South-of-Italy folk-name, Barocho,† apparently Magna Graecian, and now making its first appearance in literature, Macer describes balm, *Melissa officinalis* L., the Melissophyllon of antiquity. His 23 lines are mostly derived from Pliny, repeating most of Pliny's properties, including those importations, apparently from earlier descriptions of the other bee-loved plant Aster Atticus, which abound under Pliny's Melissophyllon (see Palladius, *supra*, p. 174). The Aster properties which Macer repeats from Pliny's Melissophyllon are: its use for the poison of stings, for ulcers, for strumae, for hemorrhoids, and

* That from Justus, lines 1382–1389, is a tale of the efficacy of a plaster of rubbed violet leaves, bound on to the left foot to cure a patient who has lost the use of his tongue (*linguae patiens amiserit usum*) due to a blow on the right side of his head; if the blow was on the left side, "bind the poultice on the right;" and ending *Ut Justus tradit medicus qui talia scripsit.* This is an early appearance of belief in the connection of the right lobe of the brain with the left side of the body, and vice versa. It is also an early (the earliest?) occurrence of the present technical use of *patient.* Some might claim that because both make citation from a Justus, Macer may also have known Marcellus Empiricus, who, about 408 A. D. (see *supra*, p. 168), made reference to an unknown writer, Iustus or Justus. But the citations made by Macer (under Viola, line 1389) and by Marcellus (c. 25) seem to be independently made; and Macer's treatment of many plants is wholly different from that of Marcellus.

† Persistent in Italy as a personal name; as the painter, Federigo Baroccio, of Urbino, 1528–1612.

general inguinal troubles, for a film over the eyes, and for the bite of a dog,

Herba canis morsus superaddita cum sale curat.

Macer begins his Barrocus with its use for rubbing over bee-hives, which he extends beyond that which Pliny had written, Macer supplying a recommendation to add milk, apparently from Calabrian folklore; Pliny's parallel passage, 21, 86, is as follows:

"If the bee-hives are rubbed all over with melissophyllum or melittaena, the bees will never desert them; for there is no flower in which they take greater delight. If branches of this plant are used, the bees may be kept within bounds without any difficulty. It is an excellent remedy also for the stings of bees, wasps and other insects, as also for wounds made by spiders and scorpions."

Macer's treatment of the relation of the plant to bees is as follows, italicizing Macer's added matter:

"*L. Barrocus.* The herbs which the Greeks called Melissophyllon,* *our people commonly call Barrocus;* it is considered above all herbs the most delightful to bees. Nor do they seem to take more pleasure in the flower of any other plant. If you anoint the bee-hives (*vasa apium*) all over *with a preparation rubbed up* from its leaves, the bees will not desert the hive; *and you will accomplish this still better if you mix milk with it; with such ointment* the bee-farmers retain their swarms. It is an immediate relief to stings of bees, *if the sting is covered instantly with the rubbed-up herb;* and in this way too, whom the wasp hurts or the spider, it cures."

The new name Barrocus, here used for the first time, is listed by Matthaeus Sylvaticus in his dictionary in the form *Barocho* as a name in southern Italy for Melissophyllon. It was evidently a strange name to the scribes writing the MSS. of Macer, whose variants include (in the accusative) barocam, barrachum, baratam and boracum, some early editions printing it boragam and borragam, as if confusing it with *borage*, name beginning in the middle ages for the rough plant still known as borage, believed to be from mediaeval Latin *borra*, rough. That origin of Barocho, however, as name of *balm*, would have no appropriateness, nor is much help obtainable from the only available genuine Latin root

* Melisophilos in one MS.; and many slighter variants.

τω, eat, seen in the rare ante-classical *brocchus*, tusky, or with projecting teeth. Barocho was doubtless a Magna Graecian folk-name, but if of ancient Greek lineage it seems to have no kindred in Greece proper unless it be the folk-name *rocca*, *ῥόκκα*, currently used now in Greece, for "some kind of sweet-scented grass" (*Attica*).

In Harpestreng's expansion of Macer, Barrocus appears as Marochus, and with a Danish name Myothyrt, translated by Meyer 3 : 538 as Honigkraut; the usual German for this Melissa being Biensauge. Harpestreng's mixing Barochus and Melissophyllon into Marochus was followed by a greater mixture in the lines of his description, which begins with Macer's 50, *Barrocus*, and presently continues with his 54, *Colubrina*, our Arum.

ALLIED OR CONTRASTED PLANTS MENTIONED BY MACER

5. *Plantago*, recommended for mad-dog's bite, tumors, the eyes, etc.; cf. *supra*, Aster uses, p. 45; p. 172, etc.

20. *Lactuca*, for the stomach, for intestinal indigestion, to secure sleep, to quiet a troubled sleep, for films over the eyes; cf. Aster uses, p. 55, etc.

26. Ostrutium, the Astricium, Astritium, Ostricium, etc., of various MS., but having only a superficial connection with Aster, Astericum, etc. Macer's first line is

Struthion, Ostrutium quod vulgi more vccatur;

Macer's plant has properties in part like Artemisia; he says it "is source of a sternutatory powder"; "its root with wine is a remedy for the hard tumor of the spleen which the Greek call *sclirosis*." Choulant doubts whether the plant is *Saponaria officinalis* L. or *Imperatoria ostrutium* L.; the latter being generally accepted here, and apparently intended by Dioscorides' original, *στρούθιον*. Harpestreng names it in Danish *ostris*.

44. *Enula* = *Inula Helenium* L.; see p. 61. A decoction of "its root drives *sciasis* from the hips"; so its relative Aster was said by Pliny to cure his *coxendicis dolor*, i. e., sciatica.

46. *Asarum* (= *Asarum Europaeum* L.) "sciasim fugat."

52. *Chelidonia* (= *Chelidonium majus* L.) the Celidoniae of

many MS. is described by Macer chiefly from Pliny, with none of the aster characters ascribed to it by Sammonicus.

32. *Papaver.*—Macer describes three kinds, which we might have expected to represent Pliny's three kinds of Argemonia; but Macer gives them different properties, and is chiefly occupied with the opiates produced from *Papaver somniferum* L.

2 (spurious). *Agrimonia*, corruption of Argemonia (like Strabus, *supra*, p. 194); a description apparently worked up from the Argemonia of Pliny, and retaining the properties shared or confused with Aster and Argemon, of use of the juice for the eyes, for serpent bites, poison of the mad-dog, for "*ventris dolor*," wounds, and adding *for spleen, pain and paralytics.*

XXXIX. THE SCHOOL OF SALERNO

Through the earlier middle ages the light of plant-knowledge burned only in the torch of medicine. For the region which had once been the Roman empire of the West, the center of that culture was Salerno, developing into a botanical garden which was pronounced to have been at the end of the thirteenth century, "superb." * Salerno as a city united many attractions. Antonio Summonte, historian of Naples, is quoted by Sylvius in 1649 as saying "In tutta Italia non essere pia delitiosa citta di Salerno."

Seated on the far-famed blue Salernian bay, thirty-four miles southeast of Naples, and once the royal city of the Two Sicilies, it was for 500 years a Lombard city, being part of the Lombard duchy of Benevento as established by Zotto in 571, and becoming independent under its Lombard prince Siconolph in 839, nine years after the entrance of Saracens into its vicinity, itself resisting their siege in 872. It flourished so that Pope Boniface VII. in 974 decreed it "a metropolis." It became Robert Guiscard's capital in 1077, and was for some time the home of the Sicilian court till its removal to Palermo in 1194. Hospitable in early days to Norman, Lombard, Roman, Greek, Jew or Saracen, to the lay-physician as well as to the monk, to the woman-physician as well as the man, it was seat of a noted University, 1150 to 1817; and for centuries before, it had been famed as a medical center. Medicine is said to have been preserved only there at the time of the fall

* Lacroix.

of Rome.* Finally the city came to be known as the Civitas Hippocratica.

Medical learning at Salerno was transmitted for centuries by a guild of lay-physicians, who maintained an air of mystery and

*Three Benedictine monasteries at Salerno founded at dates between 600 and 958, also produced men of high medical attainment. Their early fame is however lost in that of the older cloister, the monastery of Monte Cassino, founded in the Neapolitan mountains, in 529, by St. Benedict himself, being in fact the cradle of the Benedictine order. St. Benedict, who lived 480–543, enjoined upon his monks of Monte Cassino not only to cultivate the land but to read and to copy manuscripts. They were long secure in their mountain home, perched above Cassino, northeast of Naples, safely on the Neapolitan side of the Garigliano river, Charlemagne's southern boundary, his domain reaching within a few miles of the monastery.

Bertharius, Abbot of Monte Cassino, 856–884, says Meyer, 3 : 414, was "a poet even though not a great one, and the only writer of general natural history produced in the West during his century." He labored to build up a medical and general library ; as we are told by the chronicler of the cloister, Leo Marsicanus—otherwise known as Leo Ostiensis ; who died 1115, author of the "Chronica monasterii Casinensis" in some three books, before 1101 (when he became Bishop of Ostia), and finished by Petrus Diaconus, deacon at Ostia in 1128.

Leo writes that Bertharius enriched the library of his cloister with two codices—"wherein Bertharius had compiled a very full series of healing remedies from esteemed writers," and also a recipe collection, perhaps, says Meyer, the outcome of that toward which Marcellus Empiricus had made a beginning. Meyer, however, concludes that the books scarcely outlasted their author, for in 884 the Saracens who had besieged Salerno in 872, now advanced upon Cassino, stormed and burned the monastery, murdered Bertharius and expelled the monks, who remained for a time at Rome, and then, under their abbot, Angelarius, 884–9, at Teano, some 20 miles southwest of Cassino.

Since writing the above, Prof. Giacosa of Turin has published his *Magistri Salernitanae nondum editi* (see *infra*, p. 217–8), in which, p. xxii, he claims that the two oldest medical codices existing among the Monte Cassino MSS. are of a handwriting which dates them within the ninth century. Evidently they need further study to determine if they are not the identical "two medical codices of Bertharius" mentioned by Leo. Of the earlier codex, 69, Giacosa writes: "It is a collection of receipts and prescriptions collected from various books through the labors of a monk for the benefit of his companions ; including miscellaneous receipts ; an antidotarium ; a treatise on female diseases ; one on fevers ; the letters known as *Capsula eburnea*, attributed to Hippocrates ; discussion of the seasons of the year and their appropriate regimen ; a book of prognostics attributed to Hippocrates ; and short treatises on food, on baths, on exercise, and on diseases of animals." Of the other, codex 97, Giacosa adds: "Renzi assigned this to the end of the eleventh century ; but the paleography of Monte Cassino fixes its date as toward the end of the ninth century. It is a complete treatise on the medicine current at that epoch (exclusive of surgery), in logical order and assigned to its various authors, though not always correctly. It was evidently a long time the manual in use for the studious in medicine." Its materials consist, first, of general and special pathology, including works attributed to Hippocrates, Galen, Vindicianus, Aurelius, and

secrecy about their knowledge of plant-properties, or at least were so credited by later interpreters. This secular school was finally given a definite and public character, according to Meyer, by Constantinus Africanus, about 1070, and its code was confirmed by King Roger of Sicily in 1100, and in 1152 by Frederick. But in the next century, the thirteenth, its influence began to give way before that of the newly-introduced Arabic medicine and before the growing importance of the medical school of Paris and of its own offshoots at Naples and Montpellier.

SALERNITAN PHYSICIANS AND PLANT-WRITERS

The following is an outline list of Salernitan physicians and masters, with the dates, actual or approximate, of their activity. Most, if not all, of these were contributors or transmitters to that knowledge of medical plants which became recognized as the common property of the school, many of them, doubtless, making additions to the stock of plants there in cultivation which developed into its botanical garden.

848. *Macer Floridus* may have been at Salerno at this time (p. 198), and one *Josephus medicus* was already established there, buying real estate in 848 and 856. Per-

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"Scolapio medicus," the Alexandrian theosophist Esculapius. Part second is therapeutic, and of great interest to the student of plant-history, consisting of three treatises on medical plants, all illustrated by figures, as follows:

1. The *Alphabeta Herbarum;* see *infra*, *ad Paternianum*, p. 232.
2. Apuleius Platonicus' *Herbarium.*
3. A treatise on remedies of both vegetable and animal origin which attributes itself to Dioscorides, and is a part of the Paternian *De simplicibus* formerly attributed to Gariopontus; see p. 232.

The mother-cloister lay waste twenty years but was again the seat of learning in 915, and under its abbot Theobald, 1022–1035, and especially under Desiderius.

Desiderius, abbot 1058–1086, the monk Dauferius, who became as pope, Victor III., is said to have had his monks write many theological and juristic works and a Codex Medicinalis, of which only the name is known.

Alfanus, his friend, "a physician, who had won the applause of the great for his knowledge of that art before he became a Geistliche man," says Meyer, on joining the monastery of Monte Cassino in 1055 brought many medicinal books with him.

Constantinus Africanus, called "the third great scholar of Monte Cassino," is better known at Salerno.

John, of Milan and Naples, fourth of these contemporary students of nature's powers, forms, on adding Bertharius, the fifth writer on nature or on medical plants, in this series from Monte Cassino. See *infra*, p. 236.

haps this Josephus was the one who was the originator of the medicament cited (in a Salernitan Antidotarium known in a 12th century Turin MS.; *Giacosa*, p. 377) as *Yera* (Hiera) *Joseph sacerdotis*. See p. 220, under 1030. Perhaps the medicament was, however, the work of the Joseph of 1005.

855. *Josan* (the scribe meant *Josua*, *i. e.*, Joshua, suggests *Meyer*) *medicus* also purchased real estate. Can this be the writer cited as "Jozat Caldeus" by Bartholomaeus Anglicus, c. 1256 (fol. 251 of the Basle edition, c. 1470)?

900. *Ragenifrid*, physician to Prince Guaimar I. of Salerno.

908. *Alfanus*, Bishop of Salerno under Guaimar II., in a poem speaks of the stir of medical activity at Salerno,

> "Tum medicinali tantum florebat in arte
> Posset ut hic nullus languor habere locum."

924. *Eadgifu's Salernitan*, a nameless physician styled "a Salernitan physician to Charles the Simple, King of France," vanquished 924 or earlier, in a court contest of medical skill with the courtier Derold. The Salernitan was in the especial service of Charles' queen, Eadgifu, and was probably her physician at the birth in 921 of her son, Louis d'Outremer.*

958. *Petrus*, physician to Gisulf I, of Salerno, was so beloved by him that he made him Bishop of Salerno.

986. Adalbero, Bishop of Verdun, repaired "to *the physicians of Salerno*" for his health, but in vain, and died while on his return, *Ordericus Vitalis*. First record of physicians of Salerno in the plural, *Meyer*.

1000? An unknown plant writer perhaps at Salerno, made additions to Dioscorides' descriptions of plants, which additions appear "in a very ancient hand, perhaps of the 11th century" (*Giacosa*, 352), as *aggiunta* to a 9th century Lucca MS. of a Pseudo-Dioscorides.

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* Eadgifu, granddaughter of that early patron of English medicine, Alfred the Great, and sister of Athelstan, may have shared her husband's imprisonment, 925–929, but at his death, 929, carried off her son for safety to England; returning in 936, he was King of France to 954. Richer, writing his History of France in 996, tells us of the Salernitan's luckless competition with Deroldus, afterward Bishop of Amiens, who was then in King Charles' service at court. The King, who, it will be remembered, has come down through the ages labeled "The Simpleton," turned one day to Derold asking him to furnish him with the most learned physician in the world. The Queen, sitting by, suggested her Salernitan physician and besought for him that recognition. Derold, on the other hand, had the boldness to name himself. To test them both the King propounded "one hard medical question." Derold's light, pat answer (unfortunately for our curiosity, not recorded) pleased the King better than the learning of the Salernitan's reply. Derold was advanced, and finally became Bishop of Amiens, 929–946, while nothing remained for the Salernitan but poison.—Could this unnamed Salernitan physician have been the same with Macer Floridus? This would account, by this position at the French court, for Macer's knowledge of Strabus' poem and for knowledge of Macer's poem by the half-French chronicler Sigebert. But I think the supposition improbable, for if Charles' court-physician of 924 had been so remarkable a man as the poet Macer, his name would be expected upon the court chronicles and would probably have reached Richer in 996, and Sigebert, of about 1050, who knew of Macer's writings, would have been equally likely to have known of any service by Macer at the French court.

This Pseudo-Dioscorides, as Giacosa terms it, may be distinguished as the Marcelline Botanicum, for its unknown author styles it "*Libellum botanicum** ex Dioscoridis libris latino sermone conversum, cum depictis herbarum figuris," and addressed it "to the studious Marcellinus." It was evidently a briefer work than the *Butanicus* listed under the year 1090; and was probably different from the Latin translations of Dioscorides of the Lombards (p. 233) or that used by Cassiodorus (p. 152), its proportion of plants being but little above that of animals, having 37 animal figures and 46 of plants (one of which, "Dipsacos," is reproduced by Giacosa). It seems to have had no figure of Aster, and probably no description. The Compositae figured in it appear as *abrotanum*, *achillea*, *buftalmon*, *coniza*, *eliotropus* (if meant for Cichorea), and *scolimus*. Among its less familiar plant-names appear *herba actionum*, *herba sion*, *herba frenitis*, *engosminor*, *osiris*, *crysola canon*, *hyera* (variant of the Iarus of Plateario? which Camus interprets as = *Arum Italicum* Mill.); also *stignos* (for strychnos), *i.e.*, *Solanum nigrum* L.

1005. *Judas Judassohn* and *Joseph*, are mentioned, living in the Jews' quarter of Salerno.

1015. *Adelferius medicus;* whose son Petrus, a cleric, married a wife Ammaranda this year; so reads the record. Ammaranda may have been one of the learned "Meisterinnen." The effort of Pope Victor II. to suppress marriage of priests did not come till 1055.

1020? *Gariopontus* wrote about this time; compiler of the PASSIONARIUS; aided in it by "his companions, especially Albicius." See *infra*, p. 229.

1020? *Rabbi Helinus*, *i. e.*, a Jewish Rabbi named Eli or Elias, *Meyer* (or Eli Koph and the same as Copho the younger, *Henschel*); source perhaps of the name of the old Gate of Salerno called Porta Elina, or Elias Gate, *Renzi;* Mazza names him "Rabinus Elinus Hebraeus, qui primum Salerni medicinam Hebraeis de litera Hebraica legit," and calling him Primus, says that he, with masters Pontus and Salernus "were the three ancient founders of Salernitan study," "*i. e.*, were the founders of that new growth of the school and its garden under Gariopontus. Mazza also names Rabbi

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* This *Botanicum* occupies about 62 folios or nearly two-thirds of the 9th century Lucca codex no. 236. The rest consists of *Apuleius* (see p. 171), and the *De pigmentis* (pp. 216 and 233), and of a brief treatise also apparently in a 9th century hand, *De ponderibus medicinalibus*, which claims to have been the work of "Dardantus the philosopher," and to have been written out at Mantua by a Greek, Aodericos.

The MS. seems to have remained undescribed till its exhibition with other MSS. at the Exposition of the History of Medicine at Turin in 1898, when Prof. Piero Giacosa recognized it as "importantissimo," and "meriting profound study," Unfortunately the codex was recalled before comparisons could be made further than the brief mention given in Giacosa's *Magistri Salernitani nondum editi* (Turin, 1901).

For brevity further references to this valuable work the *Magistri, etc.*, will be made by use of the name of its editor, *Giacosa*. It contains about 240 pages of annotations upon 108 codices exhibited at the Turin Exposition, belonging to various Italian libraries but largely Salernitan in ultimate origin, the oldest dating from the 9th century. Giacosa also prints entire in about 314 pages, several Salernitan treatises on medicine and on plant remedies. Of the chief of these little more than the authors' names were known before, as of Ferrario, Salerno, and perhaps Bartolomeo. Others are by writers wholly unknown, an Ursone, a Giovanni, and a Giovanni son of Gregorio. All were discovered in various 12th century MSS. of the Bibl. Angelica (in Rome), in the codices numbered 1408, 1481, 1502, and 1506.

; author of a chronicle of the school, the CHRONICLE OF HELINUS, which at-
foundation to "Sem, son of Noah, who came into Apulia, and founded the
io." This chronicle is named as its own source by the later CHRONICLE OF
en under King Manfred, which described the botanical garden.

' *Salernus*, see preceding; but Renzi makes him same as Salernus of 1167.

Adala Saracensus, "who taught concerning Saracenic literature to Sar-
ys the chronicle of Helinus; his name may be meant for Abdallah, *Meyer;*
ears as Adana and Aldana, among the seven masters who compiled the "An-

' "ANTRORARIUM," the oldest of the three famed medical compends called
ım produced by the Salernitan school; known as "the work of the seven
rom the seven great Salernitans said by the old chronicle of perhaps 1260
have composed it,—*composuerunt librum qui vocatur Antrorarium;* see
469, who thinks that this is the work which Simon Januensis called the
ium universale. Its preparation is described by the chronicle of c. 1260 as
pon Gariopontus' assemblage of wise men at Salerno and of many plants, 150
100 foreign, in the botanical garden; see p. 229, n. "And then," it continues,
ilosophers gave judgment concerning the five kinds of Mirobalanus (*Myro-*
'e minalia, etc.) and the three kinds of Sannali (sandalwood); the albei and
l sannali ochilitri (white, citron-yellow and reddish-ochre); and that roo,
found who recognized it; and they gathered all medicinal books which Aris-
Galen and other philosophers composed; and these men were of that periodt
red the compend on medicine (*conventum in medicina*) with the [three]
itioned masters [Masters Primus, Pontus and Salernus]. First master was
s de Bononia; 2d, Michael Stortus, who was of the city of Salerno; 3d,
s de Ravegna; 4th, Enricus de Padua; 5th, Tetulus Graecus; 6th, Solonus
7th, Abdana [or Adana] Saracenus; who made and composed at that time
rhich is called Antrorarium." Most of these names are otherwise unknown,
represent subsequent workers who made additions; one at least, Michael
nged to a later period according to Meyer (but not so *fide* Renzi).
Antidotarium it seems probable, is the same with the *Antidotarium univer-*
bed by Giacosa, p. 375–378, which occupies 110 folios of a Salernitan 12th
S. at Turin, is "remarkable for its great number of medicaments of Graeco-
ition," and doubtless antedates Constantinus, as it has no mention of his
nstantino, a preparation which was duly recorded by Nicolao Preposito. A
ie same period has tabulated its articles and enumerates them as numbering
ling the treatise "iste antidotarium universale." The 1,193 articles are
al; each narrates first the properties, then the composition, of the remedy.
egins "Antidotarium. Aurea Alexandrina * faciemus ad reuma capitis, cuius
dat," and ends with *Vera pigra*, or sacred bitters. It is interesting to note
of the word Aster, common generic term in the Byzantine Greek of the 6th
any much vaunted remedy, as *Aster incomparabilis*, etc. Instead, *Vera*,

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a Alexandrina. With this name the Antidotarium of Nicolao Preposito
s. The name Golden Alexanders has in America been transferred to the
aureum of Nuttall; but belonged originally to the European *Smyrnium*
, fide DeCandolle, who identifies it with the *hipposelinon* of Theophrastus,
m of Pliny, the *macerone* of Italy: cultivated in English vegetable gardens
he 18th century.

i. e., hiera, the sacred or mystery-sealed, seems to have taken its place, and this Antidotarium contains 18 such, as *Yera fortissima*, *Yera Galeni*, *Yera Rufini*, and others of Vindicianus, Theodoricus, Archigenes, Asclepius and Philagrius; besides the *Yera Joseph sacerdotis*, noticed p. 217.

Another Antidotarium occupies 80 folios of a 12th century MS. at Parma, and may be a modification of this. Accurate and detailed study of the Parma and Turin MSS. is greatly needed.

1030? *William of Bologna*, *William of Ravenna*, *Henry of Padua*, *Solon the Hebrew;* known only as of the "seven masters."

1030? *Tetulus Graecus*, named as one of the seven masters compiling the "Antidotarium." Meyer seems to think Gariopontus was meant; but Gariopontus had been already mentioned as bringing the seven wise masters together. Considering Tetulus as a second Grecian, Tetulus may have been his proper name, represented in Doric by the familiar Tityrus (Attic Satyrus)—Τίτυρος, goatherd; or may have been a school appellative, in which case it may represent the remnant of the word *entitled*, = *the master who was entitled the Greek* (*intitulo*, to entitle, had already occurred in use; Rufinus used it, 400 A. D.); or may have been Latinized Greek diminutive of *τέττα*, "father." familiar term used instead of master by Greek students, Tetulus Graecus becoming equivalent to "Little Father Greek" (as Tettapharmacus, p. 227).

1035. "*Petrus et Hyacinthus*, medici et clerici," are recorded here; claimed by Meyer to be the first known instance at Salerno of physicians who were not laymen (except Petrus of 958) unlike most mediaeval conditions.

1040? *Giovanni Plateario* I may have written his DE PRACTICA about this time.

1043-5? *Rodolf Mala Corona*, the skilled Norman physician, here "learned the secrets of science," says Orderic; see *infra*, under *Platearius*.

1045? "One *sapient matron*" (*Orderic*) alone excels Rodolf "in the art of medicine"; she may have been the widow of a Giovanni Plateario; see *infra*, p. 222. Or she may have been the famed *Genesia Cleopatra*, whose *Liber de diversis infirmitatibus mulierum* survives in MSS. from the 12th century, and was printed by Wolf at Basle, 1586.

1060? *Copho* the elder; a Coptic monk? cited by Copho the younger; and perhaps author of the "VOCABULA HERBARUM," a list of plant synonyms found by Renz in a "Codex Casinense" of the 11th century, in which Greek, Hebrew, Latin and Egyptian works are cited, beginning "Asphaltum id est bitumen."

1070? *Constantinus Africanus* wrote at about this time and after, his GLOSSA, VIATICUM, DE GRADIBUS, etc.

1070? *Joannes Afflacius:* author of the *Liber aureus;* his treatise called *Curae Joh. Afflatii discipuli Costantino* also survives in the Breslau Codex.

1070? *Atto*, "chaplain to the empress Agnes" (if Agnes of Poitou, wife of Henry III. of Germany, was meant by the chronicler, she died in 1077), came, in mature years, to listen to Constantinus, Petrus Diaconus saying "Atto, Constantini Africani auditor, et Agnetis imperatricis capellanus, ea, quae supradictus Constantinus de diversa linguis transtulerat, cothurnato sermone in Romanam linguam (folkspeech) transtulit."

1081? "*Joannes medicus*," pupil of Constantinus, becomes "in *physica arte diertissimus*" "in the reigns of Alexius and Joannes Comnenus of Constantinople."*—Probably the same with Joannes of Milan, noticed at year 1101.

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* Alexius reigned from 1081 to 1118.—Joannes Comnenus, less fortunate than Robert Curthose, died from a wound by a poisoned arrow, in 1143.

1084. Late in this year occurred the cure * by the Salernitan physicians, of Bohemond, the crusader,† who when wounded, "was sent for his cure," says Orderic, "to the surgeons of Salerno, whose reputation for skill in medicine was established throughout the world." Following this is his story of the wife of Robert Guiscard, Sichelgaita of Salerno,‡ as attempting to poison first Bohemond and then her husband. Orderic says, that in order to remove Bohemond out of the way of her son's advancement, "*she prepared a deadly potion* and sent it to the physicians of Salerno, among whom she had been brought up and *by whom she had been instructed* in the use of poisons."§

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*Ordericus Vitalis, 7, 7; or in Forester's translation, 2 : 366.

† Bohemond, later Prince of Antioch, son of Robert Guiscard and named in jest for the traditionary giant of Calabria. Bohemond had been fighting the Greeks and Venetians; had won victories at Jannina and at Arta, was defeated at Larissa, then met them by sea and though victorious was wounded and was brought to Salerno for cure.

‡ Sichelgaita, Sichelgade or Sigelgaita, a princess of Salerno, daughter of Guaimar IV., sister of Geoffrey of Conversana, and of Gisulf II., last Prince of Salerno (1052–1077); married Robert Guiscard about 1059 and was at his side through his adventurous career; was with him at the head of the triumphal procession entering Palermo, Jan. 1072, on its conquest from the Saracens; and with him at Bari in 1073 when he lay long sick and was thought dying, so that she hastily assembled the Norman Knights, and caused them to choose her son Roger Bursa as successor. On this Pope Gregory VII. wrote her in condolence, professing his irremediable grief, sending her his good will and asking her to bring her son to Rome to receive confirmation of his possessions. But Guiscard recovered.

§ Orderic continues: "The physicians lent themselves to the wishes of their lady and scholar, and gave the deadly poison to Bohemond whom it was their duty to heal. Having taken it he was reduced to death's door, and instantly despatched a messenger to his father informing him of his danger. The shrewd duke immediately perceived his wife's treachery, called her to him in great distress, said, 'Bring me a copy of the holy gospels and a sword,' took them and swore, 'Listen to me, Sichelgade; I swear by this holy gospel that if my son Bohemond dies of this malady, I will plunge this sword into your bosom.' Alarmed at this menace, *she prepared a sure antidote* and sent a messenger with it to the physicians at Salerno, urging them with prayers and promises to extricate her from her peril. The physicians, learning that the treachery was detected, and perceiving the embarrassment of their lady, prayed that the duke's threats might not be put into execution, and used every effort which their medical skill suggested to restore the young prince to health: and he recovered; but such had been the violence of the poison that his countenance was pallid all the rest of his life."

However little truth there may be in this narrative, evidently embellished by the monks through whom it was transmitted (but narrated again by Meyer), there is certainly no truth, says Forester, in Orderic's following story of Sichelgaita's terminating her husband's life by slow poison soon after. The fact was that he did die soon after in the midst of an expedition against Alexius Comnenus, in June, 1085, at Durazzo in Cephalonia, where Sichelgaita and the Roman nobles performed his solemn funeral rites. But he died lamented by all, not only by wife and sons, but by his antagonist Alexius. Orderic's tale accords with the skill and fame of the Salernitan ladies; with the common practice of women there to learn medicine; and with the court familiarity with poisons and their antidotes. An echo of Salernitan sureness as to just what plant would kill, is found in Matteo Plateario's promptness, in his *Circa instans*, to remark of fungi, that

1085? *Copho* the younger; Salernitan physician, who wrote 1085 or after, but before 1100 (Meyer 3: 479); speaks in his writings which we possess, of what he had written out from the lips of Copho (the elder), and from writings of Copho's associates. He was author of the ANATOME PORCI, a medical work long familiar in the middle ages, and serving as a manual, swine being used by anatomists for demonstration purposes. An electuary which he composed also transmitted his name, the *electuarium frigidum Cophonis*.

1085. *Abbas de Curia*. The Abbot at Salerno at this time or later compounded a remedy for the use of Duke Roger, who succeeded his father Richard Guiscard, 1085, as duke or king of Apulia. It was preserved and prescribed by Nicolo in his Antidotarium, about 1110, under the name of *Electuarium Ducis* (for calculus, flatulence, indigestion and iliac pains) with explanation "quia abbas de Curia illud composuit ad opus Ducis Rogerii, filii Roberti Viscardi."

1090? *Trotula*, the celebrated "female professor," author of an oft-printed work on obstetrics; about this time, *Meyer;* about 1050, *Renzi*.

1090? *Giovanni Plateario* II. and *Matteo Plateario* I. and the wife of one (said to have been Trotula) wrote about this time; or 1170–90, *Renzi*.

1090? *Petronius*, or *Petroncello*, *Bartholomaeus*, and *Ferrarius*, are mentioned next after Copho in a list of Salernitan writers in a Breslau codex, Meyer 3: 480. Fragments of a succinct work on fevers by Petronio survive.

1090? The above *Maestro Bartolomeo* may have been the author, suggests Giacosa, of the *Trattato della Confezione*, first printed by him, 1901, from a 12th century MS.; forming pages 293–326 of his *Magistri Salernitani*. The numerous plant names in this treatise on medicaments, are mostly of accredited and usual form: some of the Aster uses are now represented by *menta levisticum*, *viola*, *polipodium*, *reubarbarum*, as stomachic; *glaucia*, *id est celidonia*, for *dolor oculorum;* poppy leaf, or *semen miconis*, *id est papaveris albi*, for procuring sleep; *asarebaccara viridis* as a laxative, etc. He mentions *crescones* for cress, and *matrisilvia*, "quam nos appellamus in vulgari nostro *cerefolium*" (the later *caprifolium*). His Compositae include *policaria*, *calendula*, *artemisia*, *cicorea*, *camomilla*, etc.

Known works by this Bartolomeo are his *Pratica* and his *Curae*, printed in the *Collectio Salernitana*, etc. The *Pratica* ends with the name *Ungula caballina*, *i. e.*, *Tussilago Farfara*.

"they are of two kinds, death-dealing and those that are not death-dealing"—*fungi mortiferi et non mortiferi;* of the deadly nightshade, that it is "*Solanum mortale*"; of the oleander, that "its virtue is venomous"—*virtutem habet venenosam;* and of the innocent-seeming *Potamogeton natans*, which he named *Facius videon*, literally "the widow-maker," saying, "Whoever shall eat of this herb, let him immediately expect death." Of similar tenor is the remark by Bartholomaeus Anglicus, that "Platearius says, if a wolf eat an almond it will die"; and the observation in the *Compendium Salernitanum* (not found in *Circa instans*) that the man who should partake of *Apium risus* would die while laughing. Not that Matteo himself knew personally about poisons; he was so poor an authority that the administration of hemlock to Socrates became in his text "an administration of mandrake to Plato"—*Appollinus eam* [appollinarem herbam] *ministravit ad Platonem*. But Matteo, like Sichelgaita, knew his antidotes well, and was confident to expel any poison with such ready remedies as turnip-seed and onion-juice; as were the very rustics about Salerno; Matteo writing of the onion, "Succus eciam [allii] interius ore receptus excutit venenum, unde dicitur Tiriaca [Theriaca, the poison-queller] rusticorum."

1090? BUTANICUS, or "Butanicus de simplicibus medicinis," a work earlier than Nicolaus Praepositus but otherwise unknown, often cited by Simon Januensis, *Meyer* 3 : 466 and 4 : 167 : perhaps the work cited by DaManlio, about 1450, as *Compositor.*

1090? LIBER DE SIMPLICI MEDICINA, another book much used by Simon Januensis, but now unknown ; he says it was without title, but was *in hoc re copiosus.*

1100. Robert Curthose, the crusader son of William the Conqueror, and who had just been saluted King of England to succeed his brother William Rufus, now comes to Salerno early in 1100, with his bride *Sibylla da Conversana*, to be healed of a poisoned arrow wound. His bride heals him ; see p. 238.

1101. The REGIMEN SANITATIS SALERNI is written out in leonine verse, by the *tota schola Salerni*, and sent to *Roberto Anglorum regi*, after his arrival, September, 1100, in Normandy.

1101. *Joannes de Mediolanum*, is claimed by an ancient MS. to have been the Salernitan editor of the preceding ; see p. 236.

1110? *Nicolo Preposito*, commonly known as Nicolaus Praepositus, "a man of wealth and noble blood," * author of a celebrated ANTIDOTARIUM † or register of medicines, printed in the 15th century, which "became a standard work for compounding medicines, and the foundation of many later compilations": "this with the works of Matthaeus Platearius are to the botanist the most important of the productions of the Salernitan school," says Meyer. Nicolo cites no authors, but is thought to have used the previous "Antrorarium" or Antidotarium of the Seven Masters as his basis. His drugs bore appropriate Greek names, as his diuretic electuary called *Philoanthropos ;* or names "ob virtutis excellentiam," as his *unguentum aureum ;* or from some one cured, as his *electurium Ducis;* or, as in precedents from Galen and Aëtios, from the physician from whom they were descended, as his *Iustinum*, a diuretic remedy, recommended also by Otho Cremonensis. Nicolo was also author of a lost ANTIDOTARIUM MAJUS,‡ and of a DISPENSARIUM ‡ existing in a 15th century redaction.

1118. *Giovanni Ferrario* I, or "Giovannaccio medico" ; living 1118, *Rensi ;* chief author of a work on drugs, in collaboration with three masters whose treatise, *Medicina Pratica*, survives in fragments.

1130. *Matteo Plateario II* probably finished his CIRCA INSTANS at about this date ; perhaps had already written his GLOSSAE ; perhaps afterwards, if he was its author, he prepared the COMPENDIUM SALERNITANUM by making additions to his Circa instans.

1140. *Matteo Plateario's* last lectures, heard by the young poet and physician Aegidius of Corbeil, may have occurred about this time.

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* "Plenus divitis et ex nobil isanguine procreatus," says Cristoforo da Onesto, in preface to his notes on Mesue.

† Nicolo's Antidotarium has been but once printed separately, a rare and very early edition ; but it is also printed in all editions of the Antidotarium of the Arabic physician Mesue, and best in the folio by Valgrisi, Venice, 1562.

‡ Asculanus and Christophorus de Honestis in the 15th century speak of this large work. Perhaps it was the basis of the Dispensarium.

‡ This is a dictionary of drugs in three books, bearing the title *Dispensarium magistri Nicolai prepositi ad aromatorios ;* Ackermann deemed it to be the work called *Majus* by Asculanus ; Choulant proved by comparison of works cited in it that its present state dates from the 15th century; probably a redactor then worked over the *Majus*, earlier? than the time of Asculanus' mention. Meyer possessed an edition printed in 1505 in quarto at Leyden ; three somewhat later editions were known to Choulant, all accompanying the *Circa instans.*

1140? The Lady *Licinia, i. e.*, giver of the licinium cure (see *infra*), mother of another Giovanni Plateario (III.).

1140? *Notitia Salernitanarum mulierum;* a work (or uncompiled recipes?) relating to defects of face and complexion which Salernus, about 1160, proposed to incorporate and improve; using *nigella glautia* (glaucium), *spargula, gariofillus, ysopus, cubeba, rubea major, flos muris* (parietaria?) *centaurea* and many still more common plants.

1150? *Maestro Ursone;* whose work on wine was first printed 1901 by Giacosa rom a 13th century MS.: it seems to be referred to by Aegidius about 1190.

1150? An otherwise unknown *Giovanni*, son of another physician Gregorio; and another unknown *Giovanni* of perhaps about this time, were authors of works printed first by Giacosa, 1901, from 12th century MSS., a short work on baths by the first, and an extensive *Trattato delle cure* by the second. In the latter occur very many plant names; for "appostemata" it recommends *succus allii, lactucella*, etc., for "condiloma," flaxseed, pomegranates, *folia plantaginis, mentastrum*, etc.; and for another tumor, also representing the *bubo* of Greek use for Aster, the remedies prescribed include *abrotanum, cicuta, pentafilon, malva et paritaria*, etc.; no reminiscence of aster occurring.

1150? *Maestro Andrea* may have flourished now or earlier; his prescription *ad menstruam restringenda* is preserved in a 12th century MS. at Rome (*Giacosa*, 385) ending with Galen's recommendation to use the seeds and roots of peony.

1160. *Giovanni Plateario III.*, perhaps finished his additions to the *Circa instans.*

1160. A "*magister Salernus*" at Salerno occurs.

1167. Magister *Salernus*, this year imprisoned at Palermo on charge of poisoning Roberto Bellisino; died in prison soon after; is thought by Renzi and Giacosa to have been the Salernus whose skill and fame is praised by Aegidius; Giacosa attributes to him the *Catholica*, first printed 1901, from a 12th century MS. This was to be a general treatise on all diseases in four books; it seems to have remained unfinished at the end of the 2d book; the author had before written medical works entitled *Tabellae Salernitanae* (*Tavole*), *Compendium*, and *Chirurgia*. Among the numerous remedies in the *Catholica* occur *petroleon, rasura osissippiae*, and plants like *lapatium, asfodilla, sinphitum, semperviva, vermicularis*, etc. Some of its remedies for diseases for which Aster had once been used, are as follows:

For a "darkness of the eyes" he recommends *radix enulae, eupatorium, maiorana, bettonica* and *artemisia*. For epilepsy Aster is no longer recommended, but *pyrethrum, stafisagria, herba paralisis, salvia*, etc. For *dolor oculorum*, use *succus celidoniae, granati, verbenae; melilotus, ruta, parietaria*, etc. For *tumor oculi, carduus benedictus, calendula*, etc. For *albedo oculi* (the *argemon* of the Greeks), *sarcocolla, fenuculum, rosa, aloe, zinziber*, etc. For *squinantia* (for which Pliny had recommended aster), Salernus uses *malva, altea, branca ursina, fenugrecum, linum, mellilotus, li ium, cinoglossa id est lingua canis et volubilis*. For *dolor stomachi*, usual remedies, and *anacaraium, carui, anisum, pillulae de granibus mirobalanis*, etc. For *apostema stomaci*, among other remedies, *oculus christi*, an early occurrence of that name. For *emorroides, cotula, rubea, brionia, solatrum*, etc. For *inflatio vulvae, rubea major, spergula cortex pini*, etc. For wounds, tie on *fasciam et super fasciam stellas planas*. For *morsus canis*, etc., use *allium, gentiana, raphanus, cucumeris agrestis, vincetossicum, carduus benedictus, oculus christi, calendula, nepita, menta, lanceola, orobus agrestis, scordeon, allium domesticum, semen canapi, ruta, diptamum*, or *plantago;* where *oculus christi* seems to inherit its repute from Aster? (See *Da Manlio* and *Anguillara.*)

1180. *Maurus*, "an esteemed Salernitan master," a man of wealth and generosity, who is said to have prepared a medicament out of pearls; Aegidius Corboliensis praises "the splendid munificence of Maurus, a man conspicuous with much gold," *Meyer* 3: 460.

1188. *Gio: anni Ferrario* II, the Signor of Gragnano, friend of William II., and author (so *Renzi* and *Giacosa*) of the work on fevers known as *Curae*, first printed 1901 in Giacosa's *Magistri* Salernitani, pp. 1–65, from a 12th century codex. He used among the Compositae, *policaria maior et minor*, *lactuca*, *scariola*, *camomilla*, *aprotanum*, *balsamita*, *succus absinthium*. *Strignum*, of Macer (for *Solanum nigrum*), he calls *stringnum*. As an emplastrum for bringing sleep he used poppy and mandragora, with oil of roses or violets. For pain in the head he directs to use *erba quae vulgo dicitur cassillago*. He cites no contemporary by name, but quotes from the *Passionarius* and from Constantinus' *Viaticum*. Renzi shows the continuance of the family in his son, Tommaso, and nephew Giovanni III; and sons of the latter, Matteo and Bartolomeo Ferrario, mentioned in documents as at Salerno in 1273.

1190. *Aegidius Corboliensis*, or Gilles de Corbeil, a Salernitan physician and teacher, later court physician to Philip Augustus of France, king 1180–1223; known for his carrying the medical knowledge of Salerno to the French schools of medicine at Paris and at Montpellier; and for his medical verses (edited by Choulant), chiefly a translation from the Antidotarium of Nicolaus Praepositus and from the Glossary of Matthaeus Platearius. His Latin hexameter treatises DE PULSIS and DE URINA became medical classics. He died, says Meyer, 3: 507, "at the beginning of the 13th century."

1190? *Domianus* edited *Circa instans*, see *infra*.

1190? *Socius Platearii*. Some companion of the Plateario family seems at about this time to have prepared the Ferrarese recension of the *Circa instans*, see *infra*.

1200. "*Magister Thomasius Saracenus* clericus Salernitanus doctor in physica" died in 1200, *Renzi*. Was he a Crusader, termed *Saracenus* on his return? as has been the case in France, and as is claimed for the origin of the name of Saracenus, the Dioscoridean editor? Renzi thought him an Arab, and perhaps the same as the Saracen master Adala. But probably Adala was a Saracen who remained a Saracen. Master Thomas instead if a Saracen by birth must have adopted Christianity, and that early enough to become a priest, taking the name of Thomas.

1200? *Otho Cremonensis*,* who may have written perhaps 1200 A. D., and whose writings when printed in part, 1551, etc., always occurred in company with the *Regimen Salerni*: author of a poem† of 138 lines "DE ELECTIONE . . . MEDICAMENTORUM" contained in a Leipsic MS. of about 1300 A. D., to which Choulant, publishing this in 1832, added 241 others as perhaps by the same author, which treat of the same remedies as the Dispensatory—or Antidotarium, of Nicolaus Praepositus. His compound medicines are interesting to compare with those of Aëtios, whose compound *Asteri* have disappeared; instead of which their virtues have passed to such preparations as those he calls *Adrianum*, a remedy for the eyes, the stomach, tumors, the king's evil or "hieranoxia," etc.; *Hygia*, for "rheuma," for the eyes, and for indigestion; *Tiriaca magna* for poison, "hieranoxia," "frigiditas stomachi," etc.; *Paulinum* (a remedy evidently traceable to Paulus Aegineta) for the eyes, and "thoracis frigora"; *Pilulae aureae* (= golden pills), to clarify the eyes and for "turbo stomachi"; *Picra Galeni* (= Galen's bitters) for "errores stomachi"; and especially his *Diasatyrion*,

*Called N. Otto Cremonensis by Seguier, 288 (in 1740).

†Printed in many editions of the Regimen Salernitana, as 1551, -3, -6, -7, 9, at Frankfort, and others (as Paris, 1559, *fide* Bumaldo, 1657).

probably made from the orchid Serapias, for the bite of a reptile, or for a barking dog, or for "matricis frigiditatem."

The special medicament-names which seem more than any other to have replaced *Aster* in his terminology are *Hiera*, the sacred remedy; (more colloquial Salernitans called it *Vera*, as in the Turin Antidotario; see the year 1030, *supra*), and he has his *Hiera Rufini*, *Hiera Galeni*, *Hiera Constantini* and *Hiera Abbatis de Curia*; and *Dia*,* as an inseparable prefix, used with the plant which had been in Greek usage, the object of *Dia* as a preposition; like *Diamargariton*, which "laedificat, cor confortat, stomachum juvat," and *Diacalamintum*, which "digestivum juvat"; and, in the third place, his series of Unguenta, as his *Unguentum Marciaton*, for "stomachi dolor," and "acumen iliacae," his *Unguentum Agrippa* for a tumor, etc.

That Otho was soon lost to memory, is seen in a 14th century MS. of his verses at Rome, which attributes them to Gilles de Corbeil (*Giacosa*, 407).

1210? *Michael Scotus* (not the Michael Scott, the savant Scotus, who lived 1210-1291), "celebrated British astronomer and necromancer," *Meyer* 3: 470, lived long at Toledo and later at Naples at the court of King Frederick II. (1208–1215, when he was crowned Emperor at Aächen, living so till 1250); was, says Renzi, esteemed a Salernitan physician; Meyer deems him the same as the second of the seven masters, reputed authors of the "Antrorarium" c. 1050, who was chronicled as "Michael Stortus, qui fuit de civitate Salerni," by some writer of Manfred's time, c. 1260. Scotus may have made additions or corrections to that digest of medicines.

1220? ALPHITA, a glossary of the 13th century, found in the Bibl. Mazarin at Paris by Carlo Daremberg and printed by him, Collectio Salernitana 3: 276 +. Camus terms it "l'interessantissimo vocabolario salernitano." The name by which it is cited is due to its first line, 'Alphita et farina hordei idem.'

1240. *Thomas de Cantiprato* (*q. v.*) bases his work on *Circa instans*.

1250? The SINONIMIA DELL ESTENSE, written probably in the 13th century, was perhaps a Salernitan compilation; it exists in Modena in two forms with slight variants, one a MS found by Professor Foucard, in 13th century characters; the other one published by Professor Camus, 1886, written out about 1458, by Le Petit Pelous, who after translating his *Secres de Salerne* from the *Tractatus Herbarum*, wrote this Sinonimia of 25 folios upon the last blank portion of the latter MS. It begins with "*Arthemisia, id est matricaria, mater herbarum*," and has also a "*Matricaria minor*, = *amerell*," and a "*Matricaria media*, = *Athanacetum* or *Athanasia*," *i. e.*, tansy. It contains no Aster, but has "Turbith, similis galange."

1260? The Salernitan Chronicle of about 1260, by an unknown writer; see p. 219.

1270? *Pietro Spano*, Spanish writer recommending his "Eufrasia" for the eyes; may have been a Salernitan scholar; his book seems to echo the title "Secreta Salernitana" in its own title "Secreta magistri Petri hispani De egritudines oculorum." He died 1277.

1285. Bernard Gordon, the Scotch author of the *Lilium medicinae*, etc., continued Salernitan traditions at its offshoot the school of Montpellier, where he lived 1285-1307. Giacosa, p. 390, notes the discovery of another work by him, a *Flebotomia*, in a Naples MS. of the 13th and 14th centuries with the date of its beginning, "inchoatus est iste liber in preclaro studio Montis Pessulani," Feb. 22, 1307.

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* Macer Floridus cited one such name, Diapiganon, which he says is a preparation made from Peganum, and which he mentions as if to him, writing about 850 A. D., it was a new form of expression.

1300? Other medical writers of presumably Salernitan training and of uncertain date, but whose works remain in MSS. of the 14th century, include:

Maestro Giovanni da Parma (a *Practica*).

Maestro Gerardo da Cremona (on purgatives, and translations from the Arabic).

Albertino da Salso or da Plagentia, whose lectures, collected by Tommaso da Crema, are in a MS. dated 1368 to 1385.

Aegidius Romanus (Liber Exameron, and on human embryology).

Maestro Ruggero (Chirurgia).

Maestro Rolando (Chirurgia).

Guglielmo da Saliceto (Chirurgia; printed, 1546).

Ludovicus Tettapharmacus, translator from the Arabic of an Antidotarium, probably by Abulcasis.

Teoderico Borgognoni (Chirurgia, printed in part, Ven. 1484; and Chirurgia dei Cavalli, not yet printed).

Taddeo Alderotti (on conservation of health).

Giovanni Alessandrino (on pestilences).

1305. *Crescenzi* (*q. v.*), uses *Circa instans* as basis.

1310. *Arnald de Villanova*, though not directly of Salerno, became associated with t about this date in his commentary on the Regimen Salerni. See *infra*, p. 242.

1313-7. *Matteo Silvatico*, or Matthaeus Sylvaticus; his PANDECTS are assigned to his time; he, born at Mantua, perhaps 1270, a Salernitan physician, perhaps 1297, ras maintaining his Colocasias in his botanical garden at Salerno, at his writing, about 313. See *infra*.

1330? *Niccolo da Reggio*, a Calabrian Greek who translated Galen into Latin for he first time (see the Latin edition of Galen, 1516), taught at Salerno in the 14th century and wrote in Latin a short abstract of the Greek Antidotarium by Nicolas Myrepsus, which was edited by Ammonius, Ingolstadt, 1541. *Meyer*, 3: 382.

1340? *Bartolomeo Mino da Siena*, "an old Salernitan writer" (*Camus*, 16), compiler f the "Tractatus herbarum," an alphabetic Latin dictionary of medical plants, preerved in a 15th century MS. at Modena, with colored figures; prepared from *Circa nstans* by omitting animal and vegetable remedies, etc. Its figures are substantially hose of Codex C of Dioscorides, *Camus*. Bartolomeo cites Pietro Spano, who died 277, and Matteo Silvatico, of 1313. Camus thinks that Andrea Mino da Siena (a poet f the 14th century, sprung from the Piccolomini family) may have been his son. See *infra*, under *Platearius*.

1340? *Salvator*, Prior "Salernitani et Neopolitani Collegii," father of Constantia.

1350? *Constantia Calenda*, praised as "insignita," "nobilis et erudita mulier;" he was "laurea etiam doctoralis," says *Mazza*.* Like so many of the Salernitan women, he was not a nun but a married physician, the record of her marriage to Baldassere de Sancto-mango de Salerno occurring in the *Register Regiae Siclae* under Joanna II., who was queen of Naples, 1343-1382. Meyer uses her record and her father's, as an argument that the School of Salerno was secular not monastic.

1350? THE AGGREGATOR PRACTICUS (q. v.); based largely on *Circa instans*.

1390? LA FORCE DES HERBES, a French translation from Macer, etc., probably written by a sojourner in Italy; begins

Ci comence li livres que
Maycirs et Ypocras firent.

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* In his *Urbis Salernitanae historia*, Naples, 1681, and in *Graevii thesaurus antiquitatum Italiae*.

Its first article, Armoise (Artemisia), quotes "Maycres" as terming it "mother of herbs," and adds "the masters say whoso carries the seed of Armoise will keep himself from any serpent."

A Turin MS. of Macer of the 14th century in 46 folios noticed by Giacosa, p. 444, presents the name in the legitimate form; beginning

Herbarum Macer dixit carmine vires,—

and is of interest because the numbering of its pages is partly in *cipher*, not in letters as in earlier MSS.

Another and closely related French MS. herbal, taken largely from Macer but later and in a 16th century hand, exists in the National Library at Turin, in 26 leaves, beginning "*Ici appres*," and stating that it is copied from the book of De Bray, which book was "*a Lempereur et au roy Charl.*" It styles itself "*De virtutibus herbarum*" and "*Li noms des herbes.*"

1390? The Pavian "ERBARIO" exists in a 15th century codex (130) of the University of Pavia, forming the whole elegant codex of about 130 folios, with descriptions and with colored figures. The figures, however, are highly diagrammatic, are drawn with more regard to effect than accuracy, and are conventional forms derived from older MSS. Camus has noted the descriptions (Malpighia, 97. 1895) and Giacosa the figures (Magistri Sal., 447–452). Of these he has reproduced several in his Atlante, plates 18, 19, 20, Turin, 1901; showing its *herba lucea, herba gualia, herba lunaria, herba cimbalaria quae multae cottilidon vocant, yris yllirica, herba foleis* and *herba illocharias.*

Figures occur under the following names of interest to Aster history:

Stellaria, fig. 5; for what plant?

Herba amorsu serpentis, fig. 32.

Herba oculus domini, fig. 54 (Oculus Christi of DaManlio?) also Calendula, Inula campana, Centaurea maior, Absinthium, Salsifica, Ungula caballina (Tussilago) and perhaps other Compositae.

We note also of agrimony and of lapathum,

Agronomie quae domiani unone vocant.
Patella sive paratella sive piratella.

1410? ERBARIO DI PADOVA, the Paduan Herbarium, an MS. herbal in Italian, occupying the first 5 or 6 folios of a 15th century codex (604) of the University of Padua, which is mainly filled with the *Chirurgia* of Rolando, and is accompanied by a notary's certificate stating that it was sold in 1421 to a pharmacist. It has about 32 plant-figures in colors, of diagrammatic character, derived apparently from the Pavian *Erbario*. Among them are *Clendonia*, *Abrotano*, *Latuge* (Lactuca), *Millefolium*. Giacosa (*Atlante*, plate 20) reproduces the figures "*herba illocharis*" and "*herba foleas.*" The text is a translation into Italian from the Latin of the Pavian "Erbario."

1415 *Rinius*. The *Liber de simplicibus Benedicti Rinii*; a MS. preserved in the Marcian library of Venice; with figures of plants derived from a codex of Dioscorides.

1456? The *Baptista Antidotarium*, 58 folios of MS. forming the beginning of a Turin 15th century codex, written in 2 columns, rubricated and with red initials. It bears the name Baptista, in gold letters, indicating the same author as the following. It begins "Aurea Alexandrina valet," etc., and includes parts of the remedies of Nicolao Prepositor, Mesue, Almansor and Serapion, and of the following little known *maestri*; Giovanni de Lignino, Stefano de Cays, Iacopo de Borsano, Giovanni, Matteo de Grate, Magno, Alberto di Canobbio, Gratiano, etc.

1456. *Baptista de Ravisone*, scribe, who on Nov. 5, 1456, completed transcribing the Latin translation of Albucasis, the *Liber servitoris*, in the codex of the preceding.

1458. LES SECRES DE SALERNE, or *Herbollaire*, a translation of Plateario's *Circa instans* into French with modifications by a young sojourner in Italy, who calls himself *Le Petit Pelous*. The Modena Library listed its MS. of this *Secres* as *Secreta Salernitana*. See *infra*, for its developments in France and England.

Similar titles had been long used ; as the

Secretum Secretorum, MS. translations in a 13th century hand in the Bibl. Angelica at Rome selected from an Arabic work *de dispositione regni*, entitled " Ciracerar, id est secretum secretorum " ascribed by the translator to Aristotle. (See Giacosa, 386).

Secretum Secretorum, a different work, printed at Bologna, 1501.

Secrets de Medecine, in French, 32 ff. ; a Bologna MS. written in 1457, beginning *Anit principio*, consisting of astrological matter and of remedies, including *secrets des dames* (Giacosa, 498).

1458. SINONIMIA by Pelous, beginning *Arthemisia ;* ending *Zuccarus*. See p. 226.

1469. INDICE DEI SEMPLICI, 6 ff. with 277 simples, *Antinomium* to *Radix assefetide*, and *Zilocaracte*, in a Turin MS.

1500. "*Hieronymus Brunsthwygk von Salern*" first prints his *Distillierung Buch* at Strasburg ; see *infra*. The name may be interpreted to indicate Salernitan personal descent ; or merely the Salernitan origin of his art.

1305–1783. Works based largely on *Circa instans;* see that title.

XL. GARIOPONTUS

Garioponto, a learned and long-lived Salernitan physician, distinguished as a Greek * scholar and teacher, may have written perhaps 1020 A. D. or earlier. He marked the full development of the codifying tendency at Salerno which was soon to be succeeded by the more original work of the so-called " Salernitan

* As Gariopontus he is now usually known, and in Italian as Garioponto or Guarimpoto. Comparison of the MS. names for him of Pontus Graecus, Gariopontus, Guaripontus, Guarimpontus, Varimpontus, and Warmipotus suggests that some local name may have become among his family or his associates assimilated to the Lombard personal name Guarin, our Warren.

It was Meyer's judgment that he is the same as the " Master Pontus " recounted by an old chronicle (see *Rabbi Helinus*, entered p. 218, under 1020) as one of the three founders of the greatness of Salerno, who gathered the philosophers together there for study and to formulate their " Antrorarium " and who brought together there " all manner of [Italian] leaves and roots and herbs, to the number of 150, and who assembled here [in their botanical garden] other plants which came from the realm of the Pagans, a number 100 generations of species," etc. Another fragment of an old chronicle says he first taught Greek learning to the Greek physicians at Salerno—" Magister Pontus Graecus de litera Graeca Graecis." Petrus, Damianus, Bishop of Ostia, born 007, d. 1072, wrote " Dicam, quod mihi Guarimpontus senex, vir videlicet honestissimus et apprime literis eruditus medicus, retulit." Simon Januensis also mentions him and calls him a Salernitan.

...ands together with his
...lernitan history when
...nd diverse MSS. were
..."dicine." In his case,
...a tendency to ascribe
...ly had nothing to do;
...which Giacosa, writing
...ve reached their present
...w researches, issued since
... completely changed the
...botanical literature, and I
...detail.
...en ascribed to Galen, but
...ns by Gariopontus from

... *passions*, that is, diseases.
...20 at Lyons as "*Galeni*
... Garioponti ... *παθῶν* libri
... "Passionarium seu Practica
...i, Alexandri et Pauli, quem
...sque socii una cum Albicio
...t in hunc ordinem redegit."
...ning the medical powers of
... the spurious works of Galen was
... attributed by Meyer, fol-
... Giacosa to various unknown
... It is called the *Dynamidii of*
... cites "a rearrangement of
... to him "as it treats of the

... Giacosa, editor; Fratelli Bocca, pub

... searched in vain for other Salernitan refer-

... century MS. dating back nearly or quite
... the Bibliotheca Angelica at Rome, which
... words, "Incipit liber Passionarii Galieni,
... has added, perhaps in the next gener-
... et composuit eum ex epistola Galieni ad
... Theodori." Modern criticism, says Giacosa,
... other ancient authors cited by it, by name of

virtues of simples." Giacosa suggests that Gariopontus may have been the redactor who made the rearrangement which Constantinus used. A considerable part of what Constantinus knew as the "Dinamidii" is lost to us, and seems not to have formed a part of the "rearrangement" used by Constantinus, surviving then, as he says, but "too much corroded by the wastes wrought by copyists, and by blunders due to the depravity of scribes." Giacosa points out three distinct elements in the printed *Dynamidiis:*

A, the first book, an ancient epistle to Paternianus; perhaps belonged originally with 4, *infra.*

B, introducing the second book; a letter from a "Hippocrates," *i.e.*, a physician, to a Maecenas of pagan Rome. It contains the injunction: "In Terentius Euelpistius' last book you may read the *Dynames Herbarum;* which herbs take heed to dig as you observe their growth under the changes of the moon." Giacosa remarks: "I can find no other trace of this Terenzio Evelpisto." In fact, the query suggests itself, Can it be that part C of the *Dinamidii* was meant by the *Dynames Herbarum*, and that its author bore this name Terentius?—An early "Epistola Ippocratis ad Antiochum regem de tuenda valetudine" (published in Helmreich's Marcellus Empiricus), may be, says Giacosa, a more ancient variant of this letter to Maecenas.

C; forming the main part of this second book; an antidotarium, with prescriptions, etc.; being the part apparently chiefly important to Constantinus, and used by him.

Works (3 and 4) follow, which have been ascribed to Gariopontus by Renzi or Meyer, but are now proved earlier by Giacosa.

3. *Dynamidiorum* libri duo; by which name Cardinal Maï published at Rome in 1835* the 1st and 2d books out of a treatise of 5 books discovered by him in a Vatican codex of the 10th century. Maï believed them hitherto unprinted, but they proved to be part of the ancient anonymous work printed by L. Schott at Strasburg in 1533, under the erroneous title of *Oribasii medici de simplicibus libri quinque.* The *Dynamidiorum* was treated by Renzi and Meyer as probably a work of Gariopontus; but the Maï MS. was probably written before Gariopontus' birth, and the unknown author may not have been much later than Apu-

* *Classicorum auctorum e Vaticanis codd.* 7 : 397, +.

leius Platonicus, from whom he drew much material, as well as from Gargilius Martialis, and from an ancient Latin translation of Hippocrates' Diaeta. It contains 125 or more chapters on plants, and is remarkably rich in synonyms, having besides those of Dioscorides and Apuleius, very many folknames from southern Italy, among which 34 plants are listed by Meyer, 3 : 496–500; including the following names for Compositae :

"*Zygiber*," for Artemisia; and the "*generatria*" distinguished by Dioscorides as *polyklonos* (the *traganthes* of Apuleius Platonicus), *monoklonos* and *leptophyllos*, by the Maï MS. are called *tagantes*, *monoglossa* and *leptophylla*.

"*Hinula campa agrestis*, dicitur Parachironia, ab aliis Centaurea, Panachilinion, Helena;" = *Inula Helenium* L.

"*Myriophyllum*, quod et Balasticon seu Centifolium" = *Achillaea Millefolium* L.

"*Pentaphyon*, *i. e.*, Gudabal (Punic name from Apuleius), qui et Pes leonis dicitur, simulat Millefolium" = a Filago? *Meyer.*

"*Tridacon lagion*, *i. e.*, Lactuca leporina, *i. e.*, Piligis" = Lactuca leporina of Apuleius? which Anguillara identified with the Cazzalepre of the Italians (Haserlöffel of Germany) the *Leontodon autumnalis* L.*

4. *De Simplicibus medicaminibus ad Paternianum*, an alphabetic summary of remedies, printed in the Spurious Galen of 1556; made up, said Meyer, "without citations but chiefly traceable to Dioscorides, seldom to Pliny and Apuleius Platonicus; Dioscorides must have been in the writer's possession." Meyer, though treating it under Gariopontus, found reason to think that this work, which we may term the Paternian treatise,—is older than the preceding.

Now it is shown by Giacosa that it is contained entire in MSS. of the 9th century, as in Codex 97 of Monte Cassino, where it bears the name of *Alphabeta herbarum* (see p. 216; the *Alfabeto delle erbe* of Giacosa). It occurs in another 9th century codex at

* Other names of present importance include two Greek variants, Glycis as a name for Paeonia, replacing the Glykyside of the Dioscoridean synonyms, and Glyconium for Pulegium replacing Glechon of Dioscorides. Glycis and Glyconium may be old Magna Graecian forms.

Recognition of the Italians as different from the Romans is shown by the Maï MS. in the remark, which may be attributed to his addition: "Bryonia a Graecis dicitur ἄμπελος λευκή (classic), a Romanis Abutaminium (corruption? for the Dioscoridean synonym Uva taminea) ab Italis Vitis alba= *Bryonia dioica* L.

Lucca, 236, under the name *De pigmentis*. It occurs in the Codex Vienna 2425, probably coeval with Gariopontus. It again appears in book V of Schott's 1533 Strasburg *De simplicibus*, attributed by him to Oribasius.

This *De simplicibus* is clearly traceable, says Giacosa, to a Latin translation of Dioscorides executed for the use of the Goths during their dominion in Italy, 493–555, which translation long supplanted the true Dioscorides, and was the Dioscorides used by Simon Januensis.

Meyer catalogs 32 peculiar Paternian plant-names. Among these are:

"Argemone ... hujus radicem Graeci Eupatorium dicunt."

"Artemisia herba est subsimilis Absinthio, sed per omnia vastior, in foliis latior, ramis altior et fortior, sed aspectu et colore humidis" (Meyer would read *similis*).

Other names include "Bulbus erraticus" for *Colchicum*, "Cuculus, graece Cinenon, alii Strychnon," for *Solanum nigrum*, "Lipsiani" for *Cicer*, "Salvicula" for *Valeriana Celtica*, etc. Another, "Cridrium," is otherwise unknown. Here also, under the name *Vella herba*, occurs the first known description of *Carrichtera Vella*, which was first recalled to modern knowledge by Anguillara.*

XLI. CONSTANTINUS AFRICANUS

Constantinus Africanus or Afer, born in Carthage about 1003, buried about 1100 at Monte Cassino, was, about 1070, the real founder of the university work of Salerno, as claimed by Meyer, 3: 471–483. Meyer's claim is that Constantinus transformed the Salernitan school; that the school had been before but a guild of physicians who held their learning and remedies secret, and made no writings public; "that it was Constantinus' great work, that he transformed the anciently-founded and high-esteemed Salernitan School from a guild of physicians to an open academy, most of whose writers thereafter wrote with a view to publicity."

Constantinus had made long and extensive journeys through the Orient in the study of medicine and philosophy,† spending 40

* Semplici, 180 (Meyer).

† "For study of grammar, dialectics, geometry, arithmetic, mathematics, astronomy, necromancy, music and physics."

years in seats of Arabic learning in Babylon, India, Aethiopia and Egypt. He returned (says Petrus Diaconus, ancient chronicler of Monte Cassino), "erudite to overflowing with philosophical studies, master of the Orient and of the Occident, a new and refulgent Hippocrates."*

Among his pupils and successors, taught by him at Monte Cassino and Salerno, were Atto, said to have been afterward chaplain to the Empress Agnes, Joannes, later of Naples, to whom he left his books, and Afflacius, also a Salernitan master.

The chief dates of his life may have been: birth 1003† at Carthage; at 18, 1021, he begins his 39 full years travel in the Orient; 1060, returns to Carthage and then lives at Reggio, perhaps 10 years; 1070, becomes identified with Salerno and Monte Cassino (appearing as one of the monks of Monte Cassino at the dedication of the abbey under Desiderius in 1071); early in 1100, burial at Monte Cassino, aged 96.‡

Constantinus' works included, besides some unprinted:

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* "Philosophicis studiis plenissime eruditus, Orientis et Occidentis magister, novus et effulgens Hyppocrates."

† These dates are modified from those suggested by Meyer (3:476), who makes his birth 1018 and death 1106, although aged 96. (See also p. 238, n.)

‡ Seeking Carthage after these forty years of travel, his fellow countrymen, says Diaconus, thought his wonderful knowledge supernatural and diabolical, and he fled for his life to Salerno. Renzi and Meyer deemed the story a monkish invention, considering the opportunity for a literary life at Salerno a sufficient inducement. He seems not to have gone there first, however, at least not to remain, but to have lived for years at Reggio, in Apulia, in converse in this ancient Magna Graecian city with people of old Greek lineage, there acquiring that mastery of Greek which he shows so remarkably in his translation of the *Viaticum* into Greek. While here he held an official position as secretary—'Ασηκρήτης—perhaps to Robert Guiscard; and lived here long enough to be entitled "The Rhegian"—ὁ Ῥηγίνος, on his Greek MSS. After this, his life at Salerno, says Petrus, "had already continued long when the brother of the King of Babylon [caliph] came there and sought him out." There he transformed the place, taught and wrote; was held in high esteem by Robert Guiscard as early as in 1075, who made the place his capital in 1077. In 1078 Richard I., prince of Capua, died, giving the revenues of his church of St. Agatha at Aversa to Constantinus, as a reward perhaps for personal care. Before this Constantinus had become a monk of Monte Cassino, and he now brought the Aversa church into possession of that cloister, where he was the friend of its Abbot Desiderius, and where he was buried, in the reign of Emperor Henricus according to Petrus, at an extreme age, supposed to be 96 by Meyer. Meyer assumes the emperor to have been Henry V. of Constantinople, 1106–1125; but it accords better with the other facts related of Constantinus, to suppose that Henry IV. of Germany was intended, whose reign was 1050–1106.

1. "Glosas herbarum et specierum," plant synonyms; the Bibl. Naples contains what seems to be a copy of this in the Pantegni MS. of the 13th century, *Camus*, 132.

2. "Viaticum," a medical work which he translated out of Syriac into Greek and of which two Greek MSS. exist at Vienna and one at Florence. His Latin translation of this from the Greek bears the name Viaticum, and has been printed.

3. "Constantini Africani, Opera conquisita." Basle, by Henricus Petrus, 1536. The title calls the work a selection from Hippocrates and Galen, and terms the author "Graeca lingua doctus sedulus lector."

4. "Constantini Africani medici. Operum reliqua hactenus desiderata." Same printer; 1536, at the end dated 1539; calls the author "the greatest in all philosophy"; forms a second volume to complete the preceding (no. 3); both are massive folios. They contain a selection from his works; some of the others are lost, some are still in MS.; these printed are pronounced by Meyer to be valuable chiefly as containing only practical medicine. They consist of translated extracts from Greek and Arabic works, many of the latter without names of their authors.* "They constitute," says Meyer, "the first introduction of Arabic medical literature to the knowledge of the West: though only of their literature, not their practice; in the latter he followed Galen."

Last of his works in the volume of 1536 is one there entitled *De gradibus quos vocant simplicium;* by Simon Januensis cited as *Liber graduum;* by Petrus Diaconus called *Duodecim graduum.* It contains over 200 remedies, 168 of which are plants, 10 of these from Arabic sources, of which one is Turbith, its first appearance in Western literature, Arabic name for *Aster Tripolium* L., but also used and soon predominantly so, for an oriental drug. Among the others are two names, otherwise unknown, of present interest as perhaps Compositae:

Oculcca, mentioned by no other author, a blue-flowered spiny Eryngium, named from its flowers like little eyes? or a violet-flowered Aster-like composite of the Buphthalmon kind? Con-

* So that the translator," says Meyer, "may be thought plagiarist" by those who did not understand his purpose; which error quickly followed, Simon Januensis and Petrus de Apone expressing very great contempt for Constantinus.

stantinus' description (Meyer 3 : 484) is "Oculcea est herba super terram duobus brachiis saliens, cujus frondes breves et subtiles, quasi frondes chamomillae. Spinam (spicam?) etiam modicam vividem et florem violaceum (habet). Rami ejus multos nodos habent." *Opera conquisita*, 352.

"*Sychc* species est Abrotani in Armenia nascentis," 360, without description. Simon Januensis in his dictionary, citing this, says "Siche Armenum, liber graduum, est Abrotanum agreste."

XLII. THE REGIMEN SALERNI

The *Regimen sanitatis Salerni*, * celebrated medical poem, seems to have been finished in 1101, the joint product † of the then Salernitan masters, reducing to aphoristic form the medical wisdom current in their school, using as material various parts of Macer Floridus' poem, etc., and addressing their poem to the King of England, identified as Prince Robert of Normandy, second son of William the Conqueror, thus harmonizing three MSS. which begin *Anglorum regi* (the oldest form), *Francorum regi* (*i. e.*, king of Normandy), and *Roberto regi.*

John of Milan—"Joannes de Mediolano"—is named ‡ as "compilator" in "the ancient Tullovian MS.", discovering which fact, his editor ‡ Zacharius Sylvius, M.D., of Rotterdam was first to make the claim § in 1648, that the original poem was written

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* *Regimen Sanitatis Salerni* (and also *Salernitanum*) is its title as given by Arnald followed by Ackermann and most authors; *Flos medicinae* of many MSS.; *Flos medicinae scholae Salerni* of Renzi; Sylvius, 1667, entitled it "*Schola Salernitana sive de conservandi valetudine praecepta metrica*"; Arnald also calls it *Medicina Salernitana*, and John de Milan, "*Flores Medicinae.*"

† This poem was first carefully edited by Arnald de Villanova, who died 1313, and in whose form, considered the most authentic example of the supposed original, the poem consisted of 364 lines. Some MSS. have only 200; later ones were augmented until they reached 2130 as published by Renzi; but Ackermann, its critical editor (Stendal, 1790) deemed all spurious which were not found in Arnald, although as Meyer remarks, many of the spurious verses are doubtless as old or older than 1101, but were not then included in the *Regimen.*

‡ Rotterdam, 1649 and 1667; printed by Leers.

§ On the authority, says Sylvius, "of Joan Georgius Schenkius, in Bibliotheca Medica."

by this till then unknown * John of Milan, whom Sylvius terms "a physician and versificator distinguished for his period." The "Tullovian MS." as quoted by Sylvius, ends with these words—

"Explicit Tractatus, qui dicitur Flores Medicinae, compilatus in studio Salerni a Mag. Joani de Mediolano Instructi medicinalis Doctore egregio, compilationi cujus concordarunt omnes Magistri illius studii."

This colophon implies that John of Milan was in 1100 one of the most learned and facile of the physicians of Salerno; that he there revised and united the verses condensed from Macer and other sources or probably largely contributed at the time by other Salernitan masters; that he then submitted them to these assembled masters and received their final approval; so that the poem went forth as the united work of the whole schools.

Everything seems to indicate that this Joannes of Milan † was the "Joannes medicus" of whom his brother-monk Petrus Diaconus wrote perhaps 1140, in his Chronicle of Monte Cassino as follows:

"Joannes medicus, supradicti Constantini Africani discipulus et Casinensis monachus, vir in physica arte disertissimus, post Constantini sui magistri transitum aphorismum ‡ edidit physicis satis necessarium. Fuit autem supradictis imperatoribus (sc. Alexii, Henrici, et Joannis). Obiit autem apud Neapolita, ubi omnes libros Constantini sui magistri reliquit"; *i. e.*, Joannes the physician, pupil of the above-named Constantinus Africanus and a monk at

* Sylvius prefixes to his editio i of the *Regimen* verses written by him as a late recompense to the unknown John of Milan as follows;

"Consolatio ad manes Jo. de Mediolano. Quod Auctor ipse Carminum Scholae Salernitanae hactenus ignotus fuerit.

"Non opera periere tua, labor iste peribit
Nunquam, Posteritas non tua scripta negat,
Hactenus incerti placuerunt Carmina multis,
At tua, qua posthac fama vigebit, erit.
Zachar Sylvius."

† Meyer, 3: 503, claimed that John of Milan was some later redactor, apparently because unmentioned by Arnald in editing the Regimen, (1310?), and because Meyer had not observed that the John who came from Milan and the John who died at Naples were evidently the same person. But Arnald does not discuss the origin of the poem at all, and the testimony of Petrus Diaconus, a contemporary who knew Joannes, is of much more weight than the silence of Arnald, who wrote five or six generations later.

‡ The aphoristic nature of the verses which compose the Regimen Salerni make *Aphorismum* a natural term to use for it. The author of the Aggregator Practicus uses the same phrase for it, in his preface, perhaps about 1350, speaking of the sagacity of Arnald de Villanova *in aphorismis suis*, *i. e.*, in his edition of the *Regimen*.

Monte Cassino, was a man most learned in the medical art ["physica" was used in ordinary terminology at Salerno as a term for medicine; as again of the Salernitan "magister Thomasius ... doctor in physica" who died in 1200, p. 225. So in England, "*physics*-garden" was long used for a garden of medicinal plants]. ... the transit from earth [in 1100*?] of his master Constantinus, Joannes edited the aphoristic code [Regimen sanitatis Salerni, of 1101] so necessary to physicians. Joannes flourished moreover under the above-named emperors [1081–1143]. He died moreover at Naples, to which school of medicine he left all the books of Constantinus his master."

The incident related which produced the Regimen Salerni and led to its remarkable first line,

Anglorum regi scripsit tota schola Salerni,

was this: that Robert Curthose,† just then proclaimed King of England, was healed at Salerno in 1100 of the effects of a poisoned arrow, which the crusader had suffered from since the siege of Jerusalem, and which it is said, had degenerated into fistula. The physicians of Salerno stated that it could not be cured except by frequent suction by the mouth, which we are told that "the pious and excellent prince was unwilling" to permit lest the poison imperil the life of another; but in his sleep his bride Sibylla ‡ repeatedly drew off the poison, "being moved by such new love to him," and sustaining no injury to herself; and he speedily recovered. Robert

* If further evidence should at some time prove that I am wrong in conjecturing the "Emperor Henricus" under whom Constantinus died, to have been Henry IV. of Germany, 1050–1106; and should prove that Meyer was right in identifying him with Henry V. of Constantinope, 1106–1125; then Constantinus' death could not have been earlier than 1106, the date Meyer assigns it. In that case John of Milan may be held to have been redactor, not original editor, of the Regimen; and to have put forth such a reissue of it soon after 1106 as received the approval of the other "masters."

† Robert Curthose (short-hose), eldest son of William the Conqueror, heir of his father in Normandy and of his brother William Rufus in England, had joined the first crusade 1096, wintering with the Normans in Apulia on his way. Declining the offered Kingdom of Jerusalem, he was told of the death of his brother William Rufus, was saluted King of England and returned to Apulia, where he married Sibylla de Conversana, and becoming alarmed at the development of fistula, repaired to Salerno. He reached Normandy September, 1100, invaded England 1101, was finally defeated and imprisoned 1106, dying at Cardiff 1134, aged 78.

‡ Sibylla da Conversana, daughter of Geoffrey of Conversana (a town in the Apulian mountains, five miles from Bari), the brother of Gisulf II., Salerno's last prince. She died lamented in Normandy, 1103, mother of Robert's young son William.

then departing to assume his crown (which he found already seized by his brother, Henry the First), "the School prescribed a ration of food for him," composed the Regimen sanitatis Salerni, and sent it to him as a guide to health. His own difficulty was the reason, continues Sylvius, why fistula * was one of the few disorders selected for special mention in the Regimen.

The popularity of this poem may be judged from the fact that Renzi enumerates 119 editions and 26 translations besides his own, and Meyer possessed 10 editions not included in the 119.†

The poem, "the quintescence of Salernitan wisdom" as Meyer terms it, is still in common quotation‡ by American physicians, who couple its famous line

Cur moriatur homo, cui salvia crescit in horto,§

and that marvel of interwoven word-tapestry,

Quos anguis dirus tristi mulcedine pavit,
Hos sanguis mirus Christi dulcedine lavit.

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* "For fistula, mix auripigmentum (arsenicum), sulphur, calx and sapo;"—"these foure, by way of Playster, Are able any Fistula to maister," as adds Holland (p. 158 of my copy of the 1634 edition). Philemon Holland, first English translator of the *Regimen* and of Pliny, lived 1551–1636. The Regimen was also translated by Thomas Cogan, and "interwoven," as he says, into his *Haven of Health*, 1588.

‡ As its sapient "Ventum saepe capis, si tu vivere rapis."—Sylvius, 1649, says of the physicians of the continent, "None but has the whole Regimen on his lips and on every occasion."

To put medical precepts into verse was the mediaeval manner; as shown in the same twelfth century by the Salernitan Aegidius of Corbeil. Metrical form was also supposed to be particularly gratifying to the Normans who had the reputation of casting everything into verse, including their celebrated epitaph for Rollo, beginning

Dux Nortmanorum cunctorum norma bonorum
Rollo ferus fortis quem gens Nortmannica mortis
Invocat articulo loco jacet in tumulo.

§ Sage was given more space than almost any herb by the Regimen Salerni; 7 lines:

Cur moriatur homo, cui salvia crescit in horto?
Contra vim mortis non est medicamen in hortis.
Salvia confortat nervos manuumque tremorem
Tollit, et ejus ope febris acuta fugit,
Salvia, Castoriumque Lavendula, Primula veris,
Nasturtium, Armoracia, haec sanat paralytica membra,
Salvia salvatrix, natura conciliatrix:—or, beginning Holland's version, p. 130,

"Why should man dye (so doth the sentence say),
When Sage grows in his Garden day by day?"

Avicenna, 3, 1, remarks, "Ars quidem sanitatis tuendae nos à morte securos non facit," and Arnald de Villanova, commenting on the above, "Nulla tamen invenitur quae moriendi necessitatem medicina." But as Cogan, p. 32, puts it, "Such is the vertue of Sage, that if it were possible, it would make a man immortall."

Plant remedies and diseases form however by no means the chief subject of the Regimen. It discusses air, food, exercise, sleep, bodily functions and temperaments. It attempts its greatest exactitude in telling the number of the bones, putting the number 219* into such a form of verbal jugglery as to fasten it to the memory:

Ossibus ex denis bis centenisque novenis.

So with the number of the teeth, 32:

Constat homo, denis bis dentibus, et duodenis;

and it even assumes to count the veins, 365:

Et ter centenis decies sex quinqueque venis.

A great effort with the Regimen was to mark out the four temperaments, outlined in much detail. Characteristic lines include these: of the sanguine (agreeing with its description in Galen and Avicenna),

Naturâ pingues isti sunt, atque jocantes,
Rumoresque noves cupiunt audire frequentes,
Hos Venus et Bacchus delectant, fercula, risus
Et facit hos hilares et dulcia verba loquentes.
Largus, amans, hilaris videns, rubrique coloris;

the bilious,

Hirsuta, fallax, irascens, prodigus, audax,
Astutus, gracilis, siccus, croceique coloris;

the phlegmatic,

Est huic sensus habes pinguis facie color albus;

the melancholic,

Non expers fraudis, timidus, luteique coloris.

The Regimen Salerni does not mention the Aster; in fact the plants in it are few and all are common, and under their usual

* But as to their exact number Arnald remarks "Haud parva dissensio inter scriptores," saying "here 219 are claimed, but Joannes Tagaultius, excellent physician of our age, claims 246 in this distich:

Adde quater denis bis centum senaque, habebis
Quam sit multiplici conditus esse semel.

And some make 304. Rhazes proves them to be 248 by authority of Galen; with which agrees the *vulgatissimus versiculus*

Ossa ducentena atque quater sunt et duodena."

Reference to anatomy to decide, rather than to Galen, which we should have expected in case of the bones, comes at last when Arnald would consider the 365 veins, saying of them

Cuius rei certitudo ex anatomia petenda est.

names, except Morella, line 350, the Maurella of Macer, our *Solanum nigrum*. Many plants, however, occur in its spurious *aggiunta* as edited by Renzi; verses 411–499 treat of edible herbs, and 600–782 "de Simplicibus virtutibus," consisting of 90 paragraphs treating 90 plants, with some much-disguised or metrically-shortened plant names, as *Melangia* for Melanthium, and *Nastur* for Nasturtium.

But in the genuine Regimen Salerni, while Aster is not itself to be expected, there are a few items which relate to its history. Reliance on Aster and other wild plants to cure bites of serpents and mad-dogs had now given place to confidence in the onion; the Regimen recommending against poisonous bites:

Allia, ruta, pyra, et raphanus, cum Theriaca nux,*

of which Arnald remarks: "Onions are potent against the stroke of the viper," and again, "Against the mad-dog's bite they avail much; by rubbing on and in food."

Purple violet, to which the property of healing epilepsy had been transferred from Aster among the Greeks, still retained the power among the physicians sanctioning the Regimen, though they were careful to say that they knew of that efficacy only by hearsay:

"Purpuream Violam dicunt curare caducos."†

More of the anciently reputed Aster virtues are here ascribed to elecampane; including digestive use, and for hernia, and in time of Arnald, two centuries later, for serpent's bites and sciatica. The Regimen treats elecampane in these three lines:

Enula campana reddit praecordia sana,‡
Cum succo rutae succus si sumitur ejus,
Affirmant ruptis quod profit potio talis.

Rue itself had borrowed one of the Aster's prerogatives, to clear the eyesight:

Nobilitas ruta haec, quod lumina reddat acuta.

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* "Onions, rue, pear, radish, and with a Theriaca (antidote), walnuts."

† See Sylvius' edn., p. 294–5.

‡ Or, as Holland has it,

"It cheers the heart, expelling griefs away."

XLIII. ARNALD DE VILLANOVA.

Arnald de Villanova,* the celebrated alchemist and physician of 1240–1313, known as the commentator, about 1310, on the *Regimen Salerni*, becomes of chief interest to the student of Asters from his attitude in that commentary toward the Aster properties ascribed to Viola. He seems to have been the first to separate the *purple violet* of Dioscorides into its two components, suggesting that Dioscorides' repeated violet properties belong to a different *Viola purpurea* from that with which his chapter begins, and that they belong to a *Viola purpurea* which has a double, *i. e.*, radiate flower. In this commentary,† his *Exegesis*,‡ page 293, chapter 64,

* Arnald de Villanova, translator of Avicenna, who also appears as Villanovanus, Arnauld de Villeneuve, Arnaldo de Villa Nova Barchinoe, Arnoldus de Novia Villa, etc. and as "Arnald Bachuone, the learned philosopher and physician," *Poggendorff*, "the celebrated alchemist" as others style him, lived 1240–1313 or some say 1248–1314, born at Villanova, Catalonia, *fide* Meyer, or at Villeneuve near Montpellier according to others lived as a physician in Barcelona, Paris, Montpellier, Rome Bologna Florence, Naples, and Palermo. Having fled from France and Italy he was received and held in great esteem in Germany by Frederick to whom he dedicated his commentary on the Regimen Salerni, "that he might secure some good will and credit for himself with that king," says Sylvius. This Frederick, known as Frederick the Handsome, had become Duke of Austria in 1308, and was elected Emperor of Germany as Frederick III. in 1314. Arnald's death at Schiffbruck is placed in 1314 by Poggendorff, by Meyer and most authors in 1313. Arnald is claimed to have been the discoverer of muriatic acid and of free alcohol.

† In Zacharias Sylvius' edition of the "Schola Salernitana," as printed by Leers, Rotterdam, 1667 (*ex libr.* Bu.).

‡ Arnald's *Exegesis* or *De conservanda sanitate*, was printed in 1493 at Paris by Bocard, was soon translated into French and appeared in a Spanish translation at Burgos as early as 1552. Perhaps its *editio princeps* was Hain's number 1817, without date, place or printer's name, entitled "Regimen sanitatis ad inclitum regem Aragonum a Magistro Arnaldo de Villanova."

Among Arnald's numerous works on alchemy, 20 or more, are his Rosarius Philosophorum, Lumen novum, Flos florum, Speculum alchymiae, De lapide Philosophorum, etc. Among his other works are his *De arte cognoscendi venena* (Milan, 1475), his *Practica medicinae* (Milan, 1483; Venice, 1494), *De Phlebotomia* (Leyden, 1517), his *Tractatus de Vinis*, his *De Aquae Vitae*, his *Speculum medicinae*, all printed before 1500; and his *De salubri hortensium usu*, Paris, 1607. His complete works, *Opera*, etc., were published at Leyden, 1509, 1520, 1532; Lyons with life, and with notes by Tolerus, 1520, Strasburg, 1541, Basle, 1585. For comment upon him see Mangeti, Bibliotheca chemica curiosa, and Hoefer, Hist. de la Chimie, Paris, 1842; also "Arnaldo de Vilanova y sus yerros teleologicos," by Chalas, 1899

The Encyclopedia Britannica, giving his dates as 1235–1313, remarked that "if the *Breviarium Practicae* be rightly ascribed to him, his medical writings rise above the rank of compilations"

De Viola purpurea, his text consists of the two lines on the violet in the *Regimen Salerni*,

> Crapula discutitur, capitis dolor, atque gravedo, *
> Purpuream Violam dicunt curare caducos; † *i. e.*,
> Intoxication it dissipates, and a head full of pain and heaviness,
> And they say that the purple violet can cure the epileptic—

in which the first line is to be accepted as relating to Viola odorata, but the second is the imported character from Aster Atticus.

Of this second line Arnald says that "this property appears to correctly understood ‡ as belonging to *that other kind of violet* which possesses, in the middle of the violet, something resembling a collection of hair-like threads"; *i. e.*,

"Videtur itaque accipiendum esse de altero flore, qui in medio Violae instar capillamentorum inest."

Arnald's phrase may apply to a violet-rayed flower-head with slender or thread-like disk flowers forming its center; like Aster Amellus. He immediately proceeds to speak of *other double flowers*, quoting the words of Theophrastus, bk. I., c. 21, of "the double flowers which have another flower in the midst, as the rose, the lily and *Viola nigra*,"§ or, in original Greek,

διανθὲς, . . . ὥσπερ τὸ ῥόδον, καὶ τὸ κρίνον, καὶ ἴον τὸ μέλαν.

Arnald seems to pass at once from reference to double flowers in the sense of radiate Compositae of two colors, like Aster Amellus,

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Arnald appears (by name of Arnoldus de Nova Villa) in a woodcut showing him discussing plants with Avicenna, on the first page of the Vincentian edition (1491) of the *Herbolarium* or *Aggregator practicus*, causing many to credit him with authorship of that *Aggregator*. Gesner in 1552 pointed out the error. Yet the error has been so persistent that it still appears in catalog so late as 1902. See *infra*, under the *Aggregator*.

* Taken from Macer Floridus, line 1350,

> Crapula discutitur bibitis, capitisque gravedo.

† This is line 1353 of Macer Floridus, without change

‡ So Holland, also, the English translator, was surprised at finding this property ascribed to the violet; he rendered the line, p. 137,

> The smell of Violets doth soone allay,
> And cures the Falling sicknesse, as some say;

commenting, "Violets helpe them that have the Falling sicknesse. Though some say thus, yet this effect is not commonly ascribed unto Violets. And, therefore, if Violets have this property it is but by reason of their sweet smell that comforteth the braine," etc. Cogan, p. 67, transferred the property to the pansy.

§ Arnald's quotation of Theodorus Gaza's translation of Theophrastus' *ἰον μέλαν*.

to that of double flowers in our ordinary sense, the two applications blending in his mind. Still other applications of the term double flowers were common; Scaliger for example (1484–1558) remarks on proliferous roses and proliferous carnations as another kind of doubling; "they are called *duplex* at Padua," he remarks of the latter, commenting on Theophrastus, 1, 21.

The tendency to term radiate Compositae *double* when the flower-heads show such different colors as purple and yellow, finds another example in 1570, in Pena and Lobel, who, *Adversaria*, 123, say of *Aster Tripolium* L.,

"duplicis est floris, nempè lutei et purpurei." *

That Arnald is not to be understood as saying his second kind of Viola purpurea is a double flower in the same sense as the rose appears from his description of its center as "instar capillamentorum," or composed of something resembling filaments; which would be applicable to Aster Amellus, but suggests something much narrower than the inner petals of our present double violet. It might be urged that the present breadth of the supernumerary petals in our double violet has developed entirely since Arnald's time, say 1280, A. D., and that the double violet of his acquaintance had its center filled with staminodes reverting but slightly as yet toward petals. But this seems unlikely, since Theophrastus' reference, c. 320 B. C., speaks of the double violet in the same way as of the double rose, and implies therefore that the violet was in Theophrastus' time fairly double, the double rose which is

* Said by Pena and Lobel when explaining the current reputation of Aster Tripolium as "changing color thrice a day" (*Dioscorides*), which reputation they explained as arising from the earlier development of the yellow center and the rapid opening thereafter of the whitish rays which soon turn purple; or, as they say, "in other respects Tripolium agrees exquisitely, though not indeed experiencing change of color quite three times a day; but because the flower is double, namely, yellow in part, and in another part of a purple color inclining to reddish-purple or even to blue, the yellow leaflets radiately situated (disk flowers in a circle) are accustomed to open in flower first, yet when we have carefully observed them (while the purple or whitish ones are beheld, partly bent over inward, some of the leaflets meanwhile still remaining in place), there are numerous whitish stamens [unopened florets] and surviving purple ones, which caused the common opinion of a change of color three times a day, which kind of change we have also already observed may happen in a different manner [succession] in some plants of our own."

linked with it having been already called a flower of 60 petals by Herodotus,* and of 100 by Theophrastus.†

That Arnald should have seen Aster Amellus himself or should have known of it from others, is not improbable, considering his numerous changes of abode, conversant as he was not only with Italy and France but with Alpine Germany.

That he should speak of it loosely as a purple violet is not surprising, when we consider the strength of the mediaeval tendency ‡ to call anything a violet if it was sufficiently showy—modesty in the violet not yet impressing the mediaeval observer as its chief characteristic.

Among other comments by Arnald upon the plants of the Regimen Salerni, the following relate to plants allied to Aster or confused with it.

Conyza, fleabane; species of Pulicaria, etc., p. 288, Arnald quotes Pamphilius as mentioning this, among his numerous flea-remedies and saying "aut conizae coctae decoctum irroratum."

Chelidonium, p. 305. Beside its usual potency, used by swallows to open the eyes of their young, adding, "hence it is known

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* Herodotus (born B. C. 484), book 8, *αὐτόματα* (spontaneous) *ῥόδα· ἓν ἕκαστον ἐξήκοντα φύλλα*, "in Macedonia, more fragrant than many other roses."

† Theophrastus, 6, 6, the *Rosa centifolia* of Theodorus Gaza; "also in Macedonia; but small and of little odor."

‡ Witness the following examples among applications of the name Viola in the half century following Fuchs in 1542:

Viola agrestis, Bock, = *Saponaria officinalis* L.

Viola alba, Bock, Wm. Turner, Fuchs, Dalechamp, = *Leucoium*.

Viola anonymos inodora, Gesner, = *Specularia*.

Viola candida, Bock, = *Cheiranthus incanus* L.

Viola domestica, Anguillara, = *Cheiranthus incanus* L.

Viola flammea, V. barbata, etc., = *Dianthus* sp.

Viola latifolia, Dodoens, Clusius, Dalechamp, = *Lunaria rediviva* L.

Viola Lunaria, Tabernaemontanus, Gerarde, *Lunaria rediviva* L.

Viola lutea, Bock, Gesner, = *Camelina*.

Viola lutea, Fuchs, Dodoens, Caesalpino, Gerarde, = *Cheiranthus erysimoides* L.

Viola Mariana, Gesner, Lobel, Dodoens, = *Campanula*.

Viola matronalis, Fuchs, Wm. Turner, Caesalpino, = *Cheiranthus incanus* L.

Viola matronalis, Gesner, Dodoens, = *Hesperis matronalis* L.

Viola Peruviana, Tabernaemontanus = the Marvel of Peru, the *Admirabilis Peruviana* of Clusius.

Viola purpurea, Bock, Lobel, purplish form of *Cheiranthus incanus* L.

Viola purpurea, Dalechamp, = *Hesperis matronalis* L.

that the juice is good for the eyes of men," Arnald continues to quote the imported Aster-property, saying: "With anise and white wine in drink it is a remedy for the king's evil and for ulcers which creep."

Inula Helenium, p. 302. To the two properties ascribed by the Regimen, Arnald adds (what the ancients had believed of Aster) "its root is good for the stomach, and for serpents' bites, and for all ruptures and epileptic convulsions; and its leaves boiled in wine are good for sciatica."

Primula veris, p. 285. "Primula veris . . . paralysi . . . atque articulorum vitiis . . . auxiliatur; atque inde Arthritica etiam à nonnullis et Herba paralysis appellatur."

XLIV. PLATEARIO AND FAMILY

The Plateario family of Salerno, as source of the *Circa intans*, mark the center of the middle ages for botany and medicine. At least nine or ten members seem to have been writers.

Meyer, 3: 460, states that "to the Platearius family belong at least three generations one after another, man and wife, father, mother and son, all Salernitan physicians, *Meistern und Meisterinnen*."

Renzi, Collectio Salernitana 1 : 180, arranges the Plateario family as follows: Giovanni I, about 1050; Giovanni II and Matteo I [writing from] 1070–1090; Matteo II, 1130–1160.

But Giacosa (65) complains that Renzi contradicts himself in his *Storia documentata*, 208, assigning the *Practica brevis* to Giovanni II and to 1090–1120, but on page p. 237 to 1120–1150.

I endeavor below to bring together the facts accessible and state my inferences.

FIRST GENERATION

1. GIOVANNI PLATEARIO I di San Paolo,* "medico a Salerno nel secolo XI," † the Platearius of citation respecting medical practice, author of the *Practica;* died perhaps 1040 A. D.; called "Giovanni about 1050," by Renzi; ‡ called "Platearius" and mentioned first, before Copho, in a Breslau list of Salernitan writers deemed

* So called by Haller, Bibl. Botanica, 1: 221. 1771.

† Camus, 8.

‡ Renzi, Collectio Salernitana, 1 : 180.

of chronological arrangement by Meyer (3 : 480); mentioned as "Joannes Platearius, first of a family of physicians, whose Practica or medical compendium was several times printed," Enc. Brit. art. Medicine. Haller, Meyer and Camus allude to the Practica vaguely; "la Practica di Giovanni," Camus, 6, n. Sometimes it is confused with the *Serapionis de practica* which was printed in 1488 and was bound with the *Circa instans*, the *Circa instans* itself appearing in the reprint of 1497 as *J. Platerii practica brevis;* but seemingly the *J. Platerii* there referred to is *Giovanni Plateario* III. The *Practica* of Giovanni is perhaps the *Salernitan Medical Practice* cited, when writing c. 1256, by Bartholomaeus Anglicus, who enumerated, fol. 251, among his authorities, not only *Platearius medicus* (meaning the *Circa instans* of Matteo Plateario II), but also a "*Salernitanus Practicus*" (by Wynkyn de Worde in 1495 printed *Salvicanus Practicus*).

Two Platearian works are catalogued by the British Museum as "Joannes Platearius," and may have been written by Giovanni I; the *Expositio Platearii*, of which the British Museum has two folio copies of 1495 and 1497, bound with the "Antidotarium Nicolai," and the "Canons" of Mesue; and 2d, the "*Regulae urinarium*," in Renzi's Collectio Salernitana, 1852.*

2. SAPIENS MATRONA, the *Gelehrten Salernitanerin*,† or Sapient Matron of 1045; claimed by Renzi to have been wife of Giovanni I; and to have been identical ‡ with Trotula (whom Meyer considered distinct and a generation later); was doubtless one of the nameless *mulieres Salernitanae* § called by Camus *le medichesse Salernitane*.‖ She is called *quandam sapientem matronam* by Orderic, and is the *one most skilful matron* of his translator Forester. When, perhaps 1043–1045, the Norman warrior-councillor and medical adept, Rodolf Mal Corona, was pursuing medical studies at Salerno, she, the widow then perhaps of Giovanni I, was his only rival in knowledge.

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* See Camus, L'Opera Salernitana, 8 n. (Modena, 1886).

† Meyer, 3 : 454.

‡ She might instead have been the *Meisterin* named *Genesia Cleopatra;* see p. 220.

§ So cited, as familiar but nameless medical authorities and practitioners by Salernus often, and also by the Domian reviser of Matteo Plateario, both about 1160.

‖ Camus, 16.

Orderic the Norman historian, writing about 1140 A.D., with particular reference to the monks of St. Evroult, Normandy, narrates* of this one, Rodolfus Mala Corona† or Ralph Mal-Corona, Rodolf Apple-crown or Evil-crown, that "he was studious from his childhood, and was versed in medicine, and in many deep secrets of nature, so that old men even now speak of him with wonder to their children and grandchildren. He learned the secrets of science with signal success, in the schools of France and Italy, being deeply skilled in astronomy as well as in grammar and dialectics, and also in music. He‡ was so complete a master of the art of medicine, that at Salerno, where the most ancient school of medicine has long flourished, he was unrivalled except by one skilful matron." Such were the attainments of the man whom the Salernitan matron excelled.§

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*Ordericus Vitalis, Forester's tr., 1 : 394 and 423. 1853.

† Rodolf was one of the 7 sons of the Norman Giroie (grandson of the Breton noble Abbo) and Gisela; and himself uncle of the second abbot of St. Evroult, Robert de Grentesmesnil, who about 1063 had removed to Aquina (Aquinium, birthplace of Juvenal and of Thomas Aquinas) in Campania, and was later abbot of St. Euphemia, between the two Calabrias. Rodolf's nieces, the nuns Judith and Anna, followed Robert also into Italy; the former, called Eremberga in secular life, became wife of Count Roger the Great of Sicily, 1061, son of Tancred de Hauteville and brother of Robert Guiscard. Eremberga, the brave heroine of the siege of Troina in 1061, lived as countess of Sicily till her death in 1089.

‡ "Physicae quoque scientiam tam copiose habuit, ut in urbe Psaleritana, ubi maximae medicorum scholae ab antiquo tempore habentur, neminem in medicinali arte praeter quandam sapientem matronam sibi parem invenerit," *Ordericus Vitalis.*

§ The time of Rodolf's coming to Salerno seems probably to have followed the inordinate devotion "to arms and such frivolities" by which Orderic characterizes a part of Rodolf's younger years; and probably his Salernitan period preceded that "long residence at his native place Montreuil" when he made the experiments and cures mentioned by Orderic; which again must have preceded his entrance upon monastic life in 1055 closed by his death January 19, 1062. Rodolf's principal dates then become: Born perhaps 1010, 4th son of Giroie; he and one older son were not of age at his father's death, 1020–1030; was studious at home, and in Paris? or Rheims; probably fought in the Campagna and Apulia, during the struggles intervening between Richard I's founding Aversa in 1030 and William Bras de Fer's becoming Count of Apulia in 1043; reverted to studious life, at Salerno, perhaps as long a time as 1043–5, renowned there for skill as physician; we may suppose in the lull after the work of the Seven Masters and Gariopontus and Giovanni Plateario I, and before Copho the Younger and Constantinus; by 1050 he may have returned to Montreuil; was at Rheims 1054, became a monk 1055 at Marmontier, at St. Evroult, 1059, was seized with leprosy, returned 1061 to Marmontier, dying January 19, 1062.

SECOND GENERATION

3. MATTEO I, said to have written a *Glossa;* flor. 1070–1090, *Renzi.*

4. GIOVANNI II, also a medical writer; flor. 1070–1090, Renzi; if born c. 1040 may have written c. 1090 and died c. 1120; author, according to Renzi, of the *Practica brevis.*

5. TROTULA, author of work on diseases of women, of which an extant abstract * was printed by Renzi in the first volume of the *Collectio Salernitana,* Naples, 1852. In this she cites Copho (the elder?), c. 17, and twice in c. 57 cites "the Salernitan women physicians." † She is commonly called the wife, and by Renzi the mother, of a Joannes Platearius. She may have been wife of Giovanni II, and mother or aunt of Matteo II; but not mother of Giovanni II, as Renzi thought, if Meyer is right in attributing chronological order ‡ to the Breslau list of Salernitan writers reading "Platearius (*i. e.*, Giovanni I), Copho (the younger) Petronius, Joannes Afflacius (scholar under Constantinus; about 1170–80?), Bartholomaeus, Ferrarius and Trotula."—The Encyc. Brit. says of her: "The most noted female professor was the celebrated Trotula in the 11th century, believed to be wife of Joannes

* Five editions of the abstract of Trotula are in the British Museum, *fide* its catalog of 1897, viz.:

"Trotulae de mulierum passionibus, ante, in et post partum . . . liber," a folio of 1544, bound with the treatise "Experimentarius Medicinae."

"Trotulae curandum aegritudinum muliebrium, ante, in et post partum," being another edition of the preceding and bearing the more usual title; also printed 1544 and bound with the "Experimentarius."

"Trotulae curandum," etc., bound with Victorius' Empirica; 1554.

"Trotulae sive potius Erotis, muliebrium liber;" an edition of the preceding, forming part of the Gynaecium, in the volume (i), edited by Caspar Wolff, of Zurich; Basle, 1586 (first published 1566, as "Gynaecium, hoc est de mulierum . . . morbis," ** with commentaries of Greek, Latin, Barbarous and recent writers, four tomes," which finally all appeared at Basle, 1586–8; tome ii, edited by Caspar Bauhin; iii, Hippocrates, by M. Cordaeus; iv, by L. Mercato).

"Trotulae curandarum," etc., "libellus e recensione Aldo emendationibus atque animadversionibus illustratus." With Kornmann's "Questiones de virginum statu de jure," Leipsic, 1778.

† "Die salernitanischen Weiber, das heisst Aerztinnen" as Meyer, 3: 480, translates her words from *Collectio Salernitana,* 1: 149.

‡ But chronological order may very probably have been intended by the scribe only for the men; had he mentioned two or more women he would probably have begun a new chronological list with them.

Platearius. Many of the teachers were married and their wives and daughters appear among the professors."—Renzi believed her to be identical with the rival of Rodolf, No. 2.

THIRD GENERATION

6. MATTEO PLATEARIO II, the Matthaeus Platearius or Plataire of botanical citation, lecturer and writer on materia medica, author of the works known as *Glossae* and of the *Circa instans*, focus and center of mediaeval botany; the latter so called from its first words, and also known as *Liber de simplici medicina*, or *De virtutibus herbarum* or *De virtutibus simplicium*. He may also have been himself the one who expanded his *Circa instans* into the *Compendium Salernitanum* (or *Breslau codex* or *Liber simplicium medicinarum*), if that differ from the *Compendium* written by Salernus (see p. 224).

He flourished 1130–1160, *Renzi*, who nevertheless regarded him as son of one of the generation which flourished 1070–1090; which seems unduly remote. Meyer (3 : 507) was probably right in claiming that his activity extended "not far into the middle of the century." If born c. 1070, writing his *Circa instans* c. 1130, and then his *Glossae*, and if he was lecturing on in venerable and still inspiring and powerful age at about 1140 or possibly even to 1150, the few discovered facts of his life may be understood; including Matteo's known juniority to Nicolaus Praepositus (writing c. 1110) and to Constantinus Africanus (who died c. 1100, and whom Matteo calls "of recent memory"); and the fact that Aegidius of Corbeil, who lived till 1200, says he had instruction at Salerno from Matteo (perhaps about 1140), which put its stamp upon him for his whole life, and to the impressiveness of which he doubtless referred in his line:

Mysticus erumpit verborum vortice sensus.

This Matteo II was doubtless the Platearius * who was cured of dysuria by use of the plant Strucium (*Imperatoria?*; see p. 264).

* "Hoc rimedio Platearius fuit liberatus," says the printed Ferrarese *Circa instans* under *Strucium* as a remedy for dysuria, and which Macer, line 917, recommended for calculi (see *supra*, 206, 213). The Domian Platearius says of this cure, *ut aruculus* (*i. e.*, avunculus) *inducet*, or, "as my mother's brother remarks." The *Secres*, the French translation from the last, written in 1458, but only recently made known to the world, says, "en ceste maniere fut gary le maistre qui fist cel iure."

Another personal reference appears in the MS. Secres de Salerne of 1458 (see *infra*, p. 270), under *Appium risus* (perhaps *Ranunculus sceleratus* L.). "And they state in some books that it is deadly to man. And I, Plateario (Plentaire in the Fr. MS.), have myself found through experience that to those who have taken it, it works great harm. And on that account I prefer that it be used externally in guise of a plaster only." (Camus, 22.)

Evidence of Plateario's sound sense and restraint is shown in his refusal to share in popular delusions current about the mandrake; remarking its "*natura frigerandi et mortificandi*," he says it is a remedy for bilious disorder; its juice applied with mother's milk is cooling and produces sleep; its cold puts out the *sacred fire* of erysipelas (herba frigida, extinguit ignem sacrum); it may promote conception, though the similitude of man or woman claimed to be found in its root is not to be found in nature, but instead has been fraudulently fashioned by rustics or evildoers—"*a rusticis vel malefidis sophistice sic formatur.*" And so Bartholomaeus Anglicus cites him, fol. 51, "*de Mandragora.*"

For other indications of Plateario's personality, see *supra*, pp. 221, 222, and *infra*, p. 261.

Plateario's Glossae,—Glossae super antidotarium, is a commentary, to be dated perhaps 1140, on the Antidotarium of Nicolao Preposito of about 1110. The Glossae formed the basis of the four books of medical verse by Aegidius of Corbeil, about 1180, called "*De Laudibus et virtutibus compositorum medicaminum.*" Their relation to Plateario's *Glossae* is thus stated by Aegidius himself: "*Substramentum* et materiam nostrae expositionis sumentes *Glossae super Antidotarium* a magistro Matthaeo Plateario editas." Aegidius laments the death of Plateario in his lines 110–113:

> Vellem, quod medicae doctor Platearius artis
> Munere divino vitales carperet auras!
> Gauderet metricis pedibus sua scripta ligari,
> Et numeris parere meis.*

Aegidius, in his opening lines, chanted the effect upon him as a young listener when Plateario's disclosures of the mysteries of

* Quoted, Meyer, 3: 507 and 467, from *Aegidii Corboliensis carmina medica*, edid. Choulant, 57.

medicine came to him as a voice from a new world,

> Quae secreta diu noctis latuere sub umbra.
> Clausa, verecundi signo celata pudoris,
> Gesta sub involucro mentis, clarescere quaerunt.

Platearío's greater work, his *Circa instans*, receives separate treatment, p. 258.

7. The *medica Salernitana* whom we may call the lady LICINIA, from her use of the remedy *licinium;* sister of Matteo II and mother of Giovanni III; our knowledge of whom comes from the chapter of the *Circa instans* headed *Ambra*,* Italian and late Latin for *amber*. Under this remedy, administered *contra suffocationem matricis*, it is further stated "only by use of the fumesfrom such a licinium (usually used of *lint*), soaked in oil, put on fire and then extinguished, and applied to the nostrils, the mother of Joannes Platearius purged and cured a certain noble lady." Those who doubt the existence of 8, Giovanni III, must also doubt that of 7, and assign the references to her † to the mother of Giovanni II.

FOURTH GENERATION

8. *Giovanni Platearío* III,‡ writing perhaps 1160 A. D., son of the lady Licinia (whom he calls *mater*); nephew of the great Matteo II (whom he calls *avunculus*); the reviser of the *Circa instans*, whose name appeared as its author in the first printed edition, Ferrara, 1488, in the form *Johannes Platearius*, with the epithet *excellentissimus vir*.

SUBSEQUENT PLATEARII

9. *Socius Platearii*.—Some Salernitan sufficiently intimate with the Platearius family to know who was the giver of the *licinium*

* Another early use of the word is by Odo Cremonensis, line 18, "Laudes ambra merens levis est et dentibus haerens."

† The revision of the *Circa instans* by her son, c. 1160, the oldest reference (assuming it to be correctly preserved in the *Tractatus herbarum* of c. 1330), reads under Ambra, "Solummodo licinio tali oleo intincto accensum et extinctum et naribus appositum m. [mater, *i. e.*, mihi mater] purgavit et liberavit quendam nobilem." The French version of 1458 reads "le maistre dit que par la fumee de ce linegnon devant dit il garist une noble dame du cas." The Ferrarese editions, 1488, etc., read "Solummodo licinio tali madefacto in oleo et extincto et naribus apposito mater Joannis Platearii liberavit quendam nobilem."

‡ Such a "Giovanni posteriore, vissuto circa gli anni, 1130–1160," was claimed as probable by Camus, 8, though remarking "others doubt the existence of this Platearius."

remedy seems to have inserted "*Joannis Platearii*" after *mater* in alluding to that incident, and seems to have been the author of the Ferrarese redaction of the *Circa instans*, of perhaps about 1190 A. D., in which he may have ascribed the work to "Joannes Platearius," because he was its last redactor in the family, which would explain that authorship claimed in its *editio princeps*, Ferrara, 1488, and onward.

10. *Matthaeus Platearius junior, Pisanus*,* or Crisostomo Plateario,† a Pisan writer of the 15th century, but of whose existence modern history is uncertain; perhaps meant for no. 6.

"CIRCA INSTANS"

The dictionary of medical plants by Matteo Plateario which is known‡ from its first words as the *Circa instans*,§ marked an important point on the highway from the ancient to the modern botany. It is the center into which the botanical knowledge of the earlier middle ages was focused, and from which much of the botanical work of the next 300 years was an outgrowth. Meyer says of it "One must see the book itself; it is the richest and most botanically valuable of the works on plant-remedies which the west had yet produced since Pliny and Dioscorides." ‖

Its exact form as it left the hands of its author, Matteo Plateario II, cannot be stated with entire verbal accuracy, as in that form it has never been printed and it is probable that no unaltered manuscript exists. But assuming with Professor Camus that the Modena MS. 993 in the Bibl. Estense known as *Tractatus Herbarum* represents Plateario's original text supplemented by certain additions, we arrive at the original by deducting plant-figures, verbal changes and citations introduced by Bartolomeo Mino, c. 1330, and additions and citations made by the Domian reviser, c. 1180, also a few others by Giovanni Plateario III, c. 1150.

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* Sprengel, Geschichte, 1: 276.

† Camus, 8; quoting Haller, Bibl. Bot. 2: 658, as saying: "Liber Plateari Chrysostomi, opus pro quo fuit intoxicatus ab invidis. Is liber tractat de variis simplicibus presertim de herbis. *In B. Coll. Caj. Gonvil. Cantab. n. 996.*"

‡ Also called "*Liber de simplici medicina*," and cited in Salernitan codices as "*De virtutibus herbarum*" and as "*De virtutibus simplicium.*"

§ With the force of "in the beginning."

‖ Meyer, 3; 513.

Following out the above process, we find in *Circa instans* 480 alphabetic chapters, treating [illegible] plant remedies*; the other chapters are on mineral and animal remedies. Its plan is to give the Latin name and some synonyms, with brief descriptive remarks for the less familiar plants, and with the medical uses of all.

The partial editions of *Circa instans* printed, 1488 to 1582, from the Ferrarese recension, are, unfortunately, very rare and very little known. But its botanical names are now accessible, as published,† 1886, at Modena by Professor Giulio Camus, under the title "*L'Opera Salernitana*"‡ etc., forming the result of his recent discovery in the Este library at Modena, of two important MSS., representing early texts of *Circa instans*, one, § its amplification, the *Tractatus Herbarum*, ‖ the other its French translation, the *Secres de Salerne*.

Sprengel,** as long ago as 1807, noted that *Circa instans* furnishes "the first mention of three of our common plants, *Galeopsis Tetrahit*,†† *Clematis Flammula*, and *Spiraea filipendula*."

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* Camus identifies among these, 30 Compositae, 32 Endogens besides 14 Grasses, 30 Umbellifers, 27 of the Leguminosae, 20 Rosaceae, 20 Labiates, etc. There are 13 cryptogams, including 7 ferns and 2 fungi.

† Presented by Camus in 508 numbers or chapters of which 40 are minerals, 13 animals, as Spongia, 11 products of animals or of plants elsewhere counted; leaving 444 plant descriptions, of which 8 are in the Latin index only and not in the French translation at all; and 8 others are in the French *Secres* only; leaving 436 plants separately treated in the Latin text; one of which, however, *Rabiosa*, is an exact duplicate of another, his *Herba rabiosa*. Were I to make allowance for the numerous cases where two or more species, as the garden species and the wild, are described under the same heading, it would raise the total number of plants in *Circa instans* above 500.

‡ "L'Opera Salernitana '*Cir a instans*,' ed il testo primitivo del '*Gras Herbier en Francoys*' . . . Per Guilio Camus, Modena, 1886." 4to, 155 p. (*libr.* Bu.)

§ Also reviewed by Choulant, *Handbüch der Bücherkunde der ältern Medec.* 298. 1841. The names in the similar *Compendium Salernitanum* were reviewed by Henschel, in *Janus*, 2: 66. 1846.

‖ This Latin MS. of 142 sheets begins, as doubtless did the original *Circa instans* without title and with the words "Circa instans negocium in simplicibus medicinis nostrum versatur propositum. Simplex autem medicina est que talis et qualis est natu producta."

** Sprengel, Hist. 1: 276.

†† "*Tetrahit*, or herba judeyca;" "*Flammula*, idem vincula" and "*Filipendule* seu fissalidos," are the names Plateario gives them.

Camus, in 1886, claimed that "by reason of mention in *Circa stans*,* the Italians can pr[illegible] that their now abundant *Agave americana*,† *Oxalis corniculu[illegible]* and *Xanthium strumarium*, are not, as has been believed, immigrants from the New World."

Singularly, Plateario fell into obscurity and finally into unmerited contempt. He shared the fate of the Salernitan school when fuller translations from the Arabic appeared; although his work remained a rich quarry from which the next three centuries gilded.

Finally the unlocking of the treasures of the Greeks in their original tongue gave to Europe a direct path to antiquity, and Plateario's half-way house of mediaeval knowledge was left far aside. So thoroughly was Plateario forgotten that no attempt to print his *Circa instans* occurred, it is believed, from 1582 to 1886. Pritzel omits him entirely; and Seguier, usually so accurate, guessed, p. 292, at his date as "circa initium XIV seculi," 200 years too late.

Brief references by Haller and Sprengel, publication of extracts by Henschel and Renzi, and of comments by Meyer, have recalled Plateario to modern consciousness, though Renzi was so far from appreciating his value as to call the *Circa instans* "nothing but a *rudo catalogo*." Henschel's enthusiasm over his discovery of the Breslau MS. in 1837 and especially Meyer's judicial observations on its position (in 1856), did something to rehabilitate *Circa instans*, the latter pointing out its importance "to any who would follow the knowledge of plants from earlier to later times." Camus' study of its names and publication of the descriptive text in 1886, as already indicated, has now given the world its first opportunity to appeciate Plateario.

* Camus also calls particular attention to the remarkable number of binomials used in *Circa instans*, enumerating 54 different adjectives so used, as *silvestris*, *agrestis*, *aquaticus*, etc. I may add that Dioscorides had far excelled this however; of olive alone he distinguishes in binomial form over a dozen different kinds, and Columella distinguishes as many of his *Brassica* or cabbage. — Camus also calls attention to 28 binomials in the 13th century *Sinonimia Pretense*.

† Of the Agave of southern Italy it was claimed by Bertoloni, *Flora Italica*, 4: 196, that it is native there and a distinct species from the American. Meyer, 3: 512, remarks that Bertoloni's claim is confirmed by the figure and description in *Circa instans* and merits the attention of botanists, and notes that the Konigsberg MS. of *Secres* gives a good figure of it.

Proceeding as it does from the south of Italy, there was little likelihood that Aster would be itself described or recognized in *Circa instans.* But various relatives appear which were formerly lodged in Aster, and now abide in Inula, Pulicaria, Anthemis, etc. We pause a moment to take inventory of the status in which this center station of the middle ages shows these and some related plants;—in this *Circa instans*, in which appears the mediaeval spirit with its name *Solanum mortale* for Belladonna, which still retains its *Pollium* from the ancient theogony of Hesiod, and yet in which the modern world meets us full-grown in such names as *Primula veris*, *Sumac* and *Alkekengi.**

Aster Earths.—Still survives in *Circa instans* the use of the term Aster for an earth, the *Aster leucas*, *Aster Samius* and later the *Terra Aster* of Greece, *Terra stelle* of Plateario, who writes:

"*Terra stelle*, quod Lucanium (*i. e.*, the ancient *aster leucas*, assimilated to the Italian province Lucania) dicitur, terra est quasi-lapis;" in *Sec.* "*terre estoille.*"

The old habit of stamping such earths with a seal still remained, as well as that of palming off substitutes and adulterations:

"*Terra sigillata;* calx est odorifera et dicitur *terra argentea* vel *creta sarracenica;* facile ex nostra creta sophisticatur;" in *Sec.*, "*terre scelle*," etc.

Aster Tripolium. Turbith, used as the Arabic for *Aster Tripolium* L., was more commonly used as Arabic for another plant, an imported root, so appearing first in Costantino (p. 235), here again as "*Turbith*, an herb which is found in parts beyond sea."†

Relatives of Aster sometimes Confused with it

174. "*Enula* . . . duplex est manieres, seu ortulano (*Inula Conyza* DC.) et campana (*I. Helenium* L.). The larger is more efficacious; it heals the bowels." In *Sec.*, "Enula which they call Eaune; the E. campana grows *in plains champs.*"

47. *Anthemis Cotula* L. appears as *Arthemisia letaphilos*, or *matricaria;* with remark, "flos ejus similitur camomille et habet

* Numbers used, and identifications, are those of Camus as published in his "*L'Opera Salernitana.*" *Sec.* refers to the French version, *Secres de Salerne.*

† In *Sec.* as "*Turbith*, c'est la racine d'ung arbre"; in the *Alphita* (a little later?) as "*Turbith* radix et herbę similia trifolio, et est perforata." Camus identifies it as probably including *Ipomoea Turpethum* L.

odorem sambuci (*S. nigra*), quando eam tunseris." In *Sec.*, "Arthemisia leptaphilos, armoise la moindre, matricaria."

144. Repeats the preceding in part, "*Costula fetida*," an herb much like "camomilla," but "very fetid." There are two kinds, *major* (*Anthemis cotula* L.) and *minor* (*A. arvensis* L.). In *Sec.* the second is called *canesson*, the first *amourouque* (it is the *Amaruscus* of the Alphita, *Amarisca* of Macer; see p. 208).

97. *Matricaria Chamomilla* L. is given these names: "Matricaria or Camomilla; vocant Italii *virolorosa*, Romani *beneolente*, Galli *oblaodia*, Tuscii *abiana*." In *Sec.*, "*Chamomille* que aucuns appellent *chermiere*."

379. *Pulicaria vulgaris*, *dysenterica*, etc., occur as "*Pulicaria*: triplex est manieres, major et minor et media."

239. In *Sec.* a figure of a yellow composite, doubtless *Pulicaria odora* Reich. (called *Incensaria* in Italy, by Caesalpino and others), accompanies a text for Incensaria in *Sec.* and in *Tractatus*, both described as "similia borago," and named from odor of incense.

Anacyclus Pyrethrum DC., appears as 373, "*Pirethrum* is a well known herb."

Senecio vulgaris L. does not occur in *Circa instans*; in which "Senaciones" and "Crescion" (cress) and "Nasturcium" stand as synonyms for our *Nasturtium officinale* L., watercress.

Senecio vulgaris L. does appear, however, in the *Grant Herbier* developed from this, in the form "Senechon, by some called Selechion, by us Chardon."

Eupatorium suffers its usual inequalities of fortune. *Eupatorium cannabinum* L. appears as "Eupatorium," no. 22, also as "Canapa silvatica, by others called Agrion cannabin"; in *Sec.* as "Chanvre," no. 99; it is still known in Italy as *Eupatorio*; sharing the name Eupatorio with *Salvia pratensis* L., called "Eupatorium or Salvia agrestis," in *Circa instans* no. 181; and sharing it also with "giallo Eupatorio" of modern Italy, which is, in *Circa instans*, "*Ambroxiana*, similis eupatorium sed longiora et magis similatur mentastrum."—Of the former confusion of Argemonia and Eupatorium, no trace now remains. The Sinonimia adds "Marrubium subitaneum = eupatorium."

Artemisia vulgaris L. appears as "Arthemisia major, or mater

herbarum, regia of Romans, caristellum of Onnani (Domiani? rendered *les autres* in *Sec.*) and resembles Canapa."

Others confused with Aster.—Among plants at some time confused with Aster, though having no real relationship, the following appear in *Circa instans* (none showing any such confusion there).

Asperula, under the names *Asperula*, *Herba vitis* and *Squinancia.*

Rubia tinctoria as *Rubea herba.*

Galium as *Spargula* or *Rubea minor;* in *Secres*, as *ruelle* (it is now *rieble* in Fr.).

Lonicera Caprifolium as *Matrisilva herba* or *Periclemon;* in *Sec.*, *matrisilve* or *periclomenon.*

Centaurea Calcitrapa as *Secacul*, *Yringi*, *Calcitrapa*, *Cardinelli;* in *Sec.* as *chardon*, *secacul* or *yringe.*

Centumcapita occurs as name for *Affodilum*, *Albutium*, or *Astula regia*, *i. e.*, our *Asphodelus albus* Willd.

Eryngium does not occur separately, its name having become confused with *Calcitrapa.*

Gariofilata occurs for *Geum urbanum.*

Bellis does not occur (nor *Margarita*, except for a pearl) except as it is figured for the *Consolida minor* of the text, the text apparently intending Brunella.

Primula veris occurs as *Primile veris*, *Herba Sancti Petri*, or *Paralisis;* in *Sec.* as *Primula veris*, *primerulle*, *primule*, *l'erbe a paralisie.*

Argemone and *Argemonia* do not occur; *Papaver* appears instead, in three species taken from Macer, adding the name *Rosa fetida* to our *Papaver Rhoeas.*

Alchemilla occurs as *Leontopodium* and *Oculis Consulis* (the latter by mistake for Leontodon?).

Plantago major occurs by that name, without *aster*, but adding "Galli vocant *tarpidolopion.*"

Melilotus appears as *Mellilotum* or *Corona Regia.*

Melissa as *Melissa* or *Citrina;* in *Sec.*, as *melisse* or *citraire* or *herbe de citre.* *Melissa* is perhaps the plant here meant by *Sisymbrium*, with the remark that Constantinus states that *Sisymbrium sylvestre* is not properly called that but *calamentum.*

* Rendered in *Sec.* "Eupatoire, sauge sauvage."

Among the plants significant in Macer (see pp. 205–7), *Circa instans* bears the following comparison:

Strignum and *Maurella* of Macer for *Solanum nigrum* occur as *Strignum*, *Morella*, *Faba inversa*, or *Solatrum*; in *Sec.*, Strignum, Morelle.

Boracho does not recur; the nearest like being *burit* for *Saponaria officinalis* L. (the *borith* of the Alphita); and *borrago* for borage.

Brassica does not occur as the accepted name for cabbage, but Caules instead (as *Caulis* in Macer); *Rappa* (rape), *Nappa* (turnip) and *Rapistrum* occur for other species; one kind of cabbage appears as *Carabie*, in Sec. *Carambia*, renewal of its Greek name κράμβη. But interesting testimony to the survival of Macer's Brassica still as popular name for cabbage occurs with no. 469. "Strucium, id est, Caulis agrestis, Quidam dicunt 'Braxica non plantata,"—*Sec.*, does not contain this. The French Grant Herbier has "Strucium," or "Choul sauvage," Pietro Crescenzi has "Stutio cioe cauolino salvatico."

Paratella occurs again but seems transferred from a Rumex to an Abrus, and is given the synonyms *patella herba* and *basilica*. The Sinonimia has "Aurigea = Paradella."

Lolium perenne, *L. Italicum*, etc., are called *Lollium* and in *Sec.*, "Lolium est yvraie" to which a gloss adds that is properly *loeil*. The Sinonimia has "Zizania = lolium."

Agrimonia, confused by a Pseudo-Macer with Argemonia, here occurs as now for *Agrimonia Eupatoria* L., and so in *Sec.*, with name Agrimoine.

Among other noteworthy names of special interest we add:

Hepatica triloba L. appears as "*Trinitas*, *unitas*, idem est; herba similis asarum, et habet tria folia in uno folio;" in *Sec.* "Trinite ou unité, c'est tout ung." The *Epatica* of *Circa instans*, as of more ancient authorities, appears to be *Marchantia*.

Physalis Alkekengi L. appears as "Solatrum majus or Alchechengi, fructus ejus simulatur serasie (cherry) que fit intus quedam vesica."

Parietaria officinalis L. appears as "*Parietaria*," or "*Vitreola* quia vitres vasa ea optime mundantur."

Rhus coriaria L. appears as "*Sumac*, the seed of a shrub or tree which the Greeks call *Anagoda*."

Traces of the Botanical Garden of Salerno

Waterlilies seem to have been cultivated by Matteo Plateario in the botanical garden at Salerno if we may judge from his interested warning to his reader that the "Nenuphar purpureum" (*Nelumbium speciosum* Willd.) produces the flowers which are more desirable, "qui *meliores* sunt," while the yellow (*Nuphar luteum*) makes crocus-yellow flowers which are not so good—"croceos facens flores qui non sunt adeo boni." Nenuphar with white flowers is not here mentioned, but occurs in the Alphita, "Nenuphar, . . . apud nos tantum in albo et in citrino colore," and in the Grant Herbier as printed perhaps 1480, as "l'une est blanche l'autre est jaune." Pliny had described his yellow *nymphaea* of the Peneus in Thessaly (*Nuphar luteum* L.) and his lily-like *Nelumbium* of Marathon and of Orchomenia, in terms as if they were not cultivated and he had not seen them in Italy.

Regarding carnations, over which northern Italy was almost wildly enthusiastic by 1450, Plateario's evidence is more doubtful, and they may not have been grown in his garden, although his *Gariofilata*, interpreted to mean *Geum urbanum* L., by Camus and by *Secres* too, may perhaps have covered the carnation also, as it certainly did perhaps a century later, when, in the *Sinonima* added to the Latin MS. of *Circa instans* at Modena, we read *Gariofilata* as a synonym* for *Geum* not only but also for *Dianthus Caryophyllus*.†

* "Armeal (armeria) = Gariofilata." Also, "Avanciana, Gariofilata or sanamunda or herba benedicata or pes leporinus."

† The carnation, remarks Camus, 133, is sculptured and painted on monuments of Ferrara of about 1471; and was cultivated in the garden of Ferrara in 1460; a Modena MS. of that year mentions "the flower-pots of Garofalli" brought in to adorn a feast given by one Serzanela.—For Da Manlio's enthusiasm about them, c. 1450, see *infra*.

Plateario and the Salerno of his time thought much of the peach, quince, lemon and pomegranate; cultivated plums and damsons of many kinds; the black mulberry, fig, medlar and service; sweet and bitter almonds (his *amidalis*) (directions by Plateario for care in the culture of almonds are quoted by Bartholomaeus Anglicus from "in li[ber] de Platis," adding "Bene culte, plus fructificant amigdali, ut dicit in Plate"), and numbers of cherries (his *cerasa*), etc., etc. Among other plants which he mentions as then cultivated "in ortis" occur the melon, citron, cucumber and other gourd-fruits, the egg-plant, alkekengi, lettuce, parsnip (his Baucia), *Mentha rotundifolia* (his *ortolana*), etc., besides plants cultivated more exclusively for medical use, as his Salvia, his "Consolida major," our *Symphytum officinale* L. [his "Consolida

Traces of flower-culture at Salerno among the ladies, besides the cultivation of the rose, lily, gladiolus and iris—appear in references to marigold, amaranth, sea-mallow, marjoram and Arabian jasmine.

"Calendula (*Calendula arvensis* L., and *C. officinalis* L.) (the *soussicle* of *Secres*, and *soucicle* of modern French) dicitur florem omnes mense, nascitur locis humerosis, et eciam mulieres ponunt in ortis ad faciendum coronam, quod habet pulchros colores citrinos, subrufos, et dicitur calendula quia omni mense gerit florem."

"Gelesia" (*Amarantus tricolor* L.) with leaves red, green and yellow, "quedam mulieres tenent in orto."

"Malva ortensis (*Lavatera arborea* L.) crescens in ortis."

"Origanum . . . domesticum (*Origanum majorana* L.) . . . in ortis."

"Sambacus, id quod Gessominum, herba est cuius flores valde sunt . . . suavis odorati" (*Jasminum Sambac* Wahl.).

Traces of use of wild flowers for ornament on the part of Salernitan ladies appear in Plateario's account of the periwinkle, and immortelle.*

Traces of Plateario's own personal regard for certain wild flowers appear in the details he gives of the following:

"*Caprifolium* or *Cappprificus herba*, which some call *Oriola;* with leaves resembling *matrisilve* (*Lonicera Caprifolium* L.) but larger," etc. (*Lonicera nigra* L. in part?).

"*Sponsa solis* or *Cichorea Intiba* or *Solsequium* or *Eliotropium;* which herb is a diviner of the course of the sun; it has twisting stems, and a flower of celestial blue, and when the sun rises the flower opens, and when the sun sinks the flower is also closed," etc. (*Cichorium Intybus* L.).

"*Cennerugiò*, an herb similar to celandine, and which some call *celidonius masculus* because its leaves have a color similar to celandine; it bears a purple flower in the middle somewhat whitish; the root is almost black, but is white within; growing in size about

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media or Consoualdis," the French "consoude moienne," is *Symphytum tuberosum* L.; his "consolida minor" is *Brunella vulgaris* Moench.].

* "Provinca (*Vinca minor* L.) herba est satis communis, de qua mulieres faciunt coronas." In *Sec.* "pervence." *Helichrysum stoechas* DC., "Sticados citrinum que herba Jovis dicitur . . . tempore veris producit florem, colligitur, suspenditur et per annum servatur;" in *Sec.* it is called "Sticados citrin . . barba Jovis, . . . et l'erbe de Hercules."

two cubits high. It grows in ditches and in dark and damp places, you may find it near the blossoming in the month of April and o May." (*Glaucium corniculatum* Curt., still called *cienerognola* i Italy.)

Traces of Platearius himself* or of the preceding works of h school may be recognized in at least in the following passages:

Under *Diagridium* he speaks in the first person, *hoc autem dic*.

Under *Esula*, recommending a powder made by a physician Petricello, about which there has been discussion, he adds "ut dictum est in Antidotario," i. e., that of Nicolaus Praepositus.

Under *Radix* he writes "ut in Passionario invenitur," i. e., that of Gariopontus.

He cites Macer under *Camphora, Enula, Ysopus;* he refers also to *Constantinus Africanus;* and he cites (his own?) *Compendium Salernitanum* under *Acetum* (unless this passage was added later).

Evidence of loss since pagan times of the use of certain wild plants appears in what is said of his *Mellilotum* or *Corona regia*, so called, says Plateario, "quia formatur admodum semicirculi." The Romans had so called it, says Pliny, because they twined it into wreaths; that use had apparently ceased so that Plateario (followed by *Ortus*), seeking a reason for the name *Corona regia*, finds one in the

* *Plant Ecology* found in Matteo Plateario an early though unconscious advocate, as he is in nothing more remarkable than the care with which he notes the associations of plants, not merely giving their habitats but a hint of their characteristic surroundings. Examples of these references to localities are as follows:

Inter castaneta; so grows his Trinitas (*Hepatica triloba*), Morsus dyaboli (*Scabiosa succisa*), Palma Christi (an *Orchis*), Incensaria, etc.

Inter triticum, his Zizania (*Lolium* sp.).

Inter frumenta, his Nigella (ours?).

In arundineis, Alchemilla.

Super quercus, Polypodium vulgare L., and *Ceterach.*

In tectis, and *in parietibus, Parietaria.*

In maceribus, his Vermicularis (*Sedum acre* L.).

Supra domus, his Semperviva (houseleek).

In sepibus, briony, hyssop, etc.

In locis sabulosis, Ranunculus, "Paratella," etc.

In locis humorosis, Primula veris, & his Persicaria (*Polygonum Hydropiper* L.).

In aquis, Lemna, Nymphaea, Nelumbium, Potamogeton natans, Marchantia, etc.

In lapidosis, Geranium columbinum L., *Lonicera Caprifolium* L., etc.

Expandit super terram, of his Serpillum (thyme), Lactuca leporina (dandelion), Pilosella (a hawkweed), Penthapilon (*Potentilla reptans*), etc.

semicircular seed pod of a related plant to which the name seems then to have been extended, perhaps, suggests Camus, a Trigonella.

So also his "Verbena, Verminaca or Columbaria" (*Verbena officinalis* L.), the sacred plant of Rome as well as of Greece, now appears stripped of such associations, and in the *Secres* it has assumed modern garb entirely, the *Secres* translating it *Vervaine*.

The influence of the Church had already resulted, as shown in Plateario, in the name *herba sancti Petri* for the primrose, *herba sancti Joannis* for the plant still called St. Johnswort, *herba sancte Marie* for *Tanacetum Balsamita* L., *herbe sainte Phelippe* (in *Secres*; not described in the Latin *Circa instans*) for *Saponaria officinalis* L.; *sigillum sanct Marie sive sigillum Salamonis* for *Polygonatum multiflorum* All., *Gracia Dei* (in *Sec.*, *Grace Dieu*) for *Gratiola officinalis* L., *Alleluya herba* (and also *pane de cuccho*, cuckoo's bread) for a yellow oxalis,* and *Incensaria* (herb with odor of incense) to perhaps three plants, *Cerinthe minor* L., *Onosma echioides* L., and *Pulicaria odora* Reich., the latter still called *incensaria* in Italy. And of *Betonica officinalis* L., he says "Bethonica . . . sancta dicitur ab omnibus personis, . . . vocata domina omnium herbarum."

WORKS DERIVED FROM "CIRCA INSTANS"

1. *Compendium Salernitanum*," as cited in chapter *Acetum* of the printed Ferrarese *Circa instans*; "*Liber simplicium medicinarum*" as its Breslau MS. entitles itself, found in 1837 by Prof. G. T. Henschel, of the University of Breslau, in the Bibl. Magdalena of that city, composed of 35 treatises forming one codex, dating from toward the end of the 12th century or from perhaps 1180. It describes 447 remedies, including all of the 276 of the printed Ferrarese *Circa instans* except 14; and 185 more, mostly of animal or vegetable origin. Parts chiefly medical were printed in two volumes by Renzi; but because the botanical matter was still unprinted, Meyer in 1856 was imploring that it might soon find another editor. A synopsis of its articles had been given by Henschel in *Janus*, 2: 65. 1846.

* So maintained with vigor (against those "malignos herbaricos" who bestowed this name Alleluia upon the winged fruits fallen from the elm) by Jacobus de Manliis, about 1450. Camus identifies it with *Oxalis corniculata* L., finding thus the proof that that species did not come to Europe from America as had been claimed; and finding similar proof in *Circa instans* for *Xanthium strumarium*, and *Agave Americana* L.

This *prezioso codice*, as Camus terms it, dates doubtless from about 1180, or not long, as Meyer remarks, after the death of its original author. It seems to have been an expansion from *Circa instans;* possibly prepared by Matteo Plateario II himself; perhaps by his nephew Giovanni; or by some compiler soon after; it might be Salernus (page 224), if this should prove to be the same with the *Compendium* of which Salernus makes constant citation, about 1160? in his *Catholica.* Evidently the author felt that for the purposes of this MS., subjects other than plants should receive emphasis; he expands his chapter on *Lac* into 4 columns, and that on *Vinum* to 8; he adds new chapters on Axungia, Oleum, Caseus viridis, Aqua vitis, Cerebrum, Cor, Lingua, Spina, Caballi marini, Cantarides; in fact some 50 similar subjects are listed by Camus (p. 14).

2. *Giovannian* recension of *Circa instans*, probably prepared by Giovanni Plateario III, nephew of Matteo II, its author, perhaps by 1150, adding to his uncle's MS. the following citations or references and perhaps others:

a. Reference under *Ambra* to his mother's curing a noble lady, naming her by initial only, *M.*

b. Reference to his uncle's cure by using Strucium, calling him *avunculus;* this word and the letter *m* just mentioned, surviving unchanged in the *Tractatus.*

c. Reference to (his uncle's?) *Compendium*, under *Acetum.*

d. Possibly he, rather than his uncle, inserted the references to the Antidotarium and to the Passionarius.

e. Arabic citations (unless these were by his uncle). Our knowledge of this recension consists of inferences from the printed Ferrara edition and from the composite state of the *Tractatus Herbarum.* That his revision was made very early after his uncle's death is shown by its lack of any of the later Arabic knowledge; "he had not yet known," says Camus (15), "the translations of Albucasi, of Serapion, etc., with which Gerard da Cremona (1114–1187), exercised so great an influence on mediaeval medicine." His Arabic citations are from Rhases and Avicenna and include the remark under Cepa that "its use among the Arabs is shown by the writings of Isaac, made known to the physicians of Salerno by Constantinus."

3. *Ferrarese* recension of *Circa instans*, prepared from the preceding, perhaps by 1190 A. D., by one who knew of the cures hinted at under Ambra and Strucium in no. 3, and who inserted * the names Joannes and Platearius accordingly, and whom we may therefore term *Socius Platearii;* prepared with view to form a medical dictionary of plants only and therefore dropping chapters on minerals and animals, also some on plants; contains 276 chapters.† Printed together with the Practica of Serapion, Ferrara, 1488, I call it the Ferrarese recension because first printed at Ferrara, but its writer doubtless wrote at Salerno. Perhaps the fragmentary 14th century MS. of *Circa instans*, 5 leaves, found by Puccinotti in the Bibl. Barberina at Rome, belonged to this recension; as also may the Turin 14th century MS. (*Circa instans* to *Zuccarum*), the only *Circa instans* exhibited at the great Italian exhibit of medical MSS. in 1898 (*Giacosa*, 411).‡

The world's knowledge of the *Circa instans* was confined to this form of it till the discovery of the Breslau MS. in 1837, and the publication of extracts from the Modena codex *Estense* in 1886; the *printed* Circa instans (the *Circa instans stampato* of Camus), being printed from some MS. of this Ferrarese recension; first at Ferrara,§ 1488, *Choulant.* together with the *Practica* of

* Another possible interpretation is that the initial *m* for *mater Joannis* and the word *arunculus* for *Platearius* had descended through an unaltered text through perhaps four generations of family revision, from Giovanni I, supposing that Matteo II in writing his *Circa instans* incorporated in it without change the statements under *ambra* and *strucium* written by some ancestor like Giovanni I. But these pivotal words are just the words Matteo II would have been likely to have changed, had they existed in matter coming down to him and now revised by him to make it true to the present.

† Of the 276, five short chapters are not found in no. 2 or no. 4, but found in the *Simonimia Estense*, as *Abrotanum*, *Anagallidos*, *Arnoglossa*, *Aaron*, *Celtica;* and it contains 4 others, *Malabratum*, *Nitrum*, *Siseleos* and *Stafisagria*, which are lacking in both 4 and 5, but are listed in their index, *Camus* (13).

‡ This, the Asti codex, is one of 53 leaves, of which *Circa instans* fills the first 29; the Alphita, Gerardo da Cremona on purgatives and Constantinus' translation of "Isacco Giudeo" fill the rest. This valuable 14th century codex, now in the Bibl. Nat. of Turin, was bought (says its inscriptions) while in the papal college, in 1408, for 6 florins, by one Magister Sysmondi de Asinarii de Asti, artium et medicinae doctoris," and, later, another hand writes that it "is the book of Magister Johannes Nicolaus de Ferrario de Asti, doctor of medicine and of arts, practicing at Asti."

§ This Ferrara *editio princeps* of 1488 bore, as title, "Incipit *liber de simplici medicina* secundum Platearium dictus *Circa instans*" and ended "Explicit *liber de simplicibus medicinis* eccellentissimi viri Johannis Platearii." Probably both were added

Serapion, under the title "*Serapionis practica sive breviarium.*" The remaining printed editions are thought to be reprints from this of 1488; they also were bound with the Practica of Serapion, in case of the editions, folio, of Venice, 1497 * (printed by Bonetus Locatellus), 1499, 1530, of Lyons 1524, Leyden 1525 (by Fradinus); or were bound with the *Dispensarium* attributed to Nicolaus Praepositus, 1517, and Leyden 1512 (by Fradinus) and 1536, Paris (by Nicolaus Bonsonius) 1582. All are rare; Meyer had the 1530 edition, the British Museum has those of 1497, 1517, 1524–1525, 1536, which it catalogs (1893) under *Joannes* Platearius. A synopsis of the printed *Circa instans* was printed by Choulant in his *Handbuch* der Bücherkunde der ältern Medecin, p. 298.

4. *Domian* redaction, perhaps by 1190 or 1200 A. D.; peculiar in its use of the adjective *Domiani.* The Ferrarese redaction was distinguished by copious omissions; the Domian by slight additions. The former is now represented by the printed *Circa instans;* the latter by its outgrowth, the MS. *Tractatus Herbarum.* The name Domian I apply from its peculiar use of an adjective *domiani* and *domani* with plant-names, apparently to specify, as Camus points out, those names current *at home* to the reviser (L. *domus*), a reviser, who was perhaps a Calabrian, for his names indicate a home in southern Italy and a dialect influenced by Arabic † and Greek ‡ elements.

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by the printer; probably the printer inferred *Johannes* Platearius as author from the occurrence of his name in the body of the work under Ambra.

* The first Venice edition, 1497, bears the title "J. Platearii practica brevis feliciter incipit,—Incipit Liber de simplici medicina," etc., as in 1488; shortened in 1525 to "Pra. J. P. Liber de simplici," etc.

† Arabic and Greek elements had both influenced the dialect as Camus points out in its name *lome*, a resin, modified through Greek speech of Calabria and Sicily in the form *elemmi*, from the Arabic *el-luban*, resin, these Greeks replacing Arabic *b* by *m;* as in the chapter *Gumma Elemmi*, the Domian writes "Sarraceni vocant *elemmi*, nos autem vocamus *lome.*

So also under *Aloe*, Domianus writes, "nos autem vocamus eam cimbar," which is not in the printed or Ferrarese *Circa instans;* nor in the *Ortus sanitati*, though it cites its *Aloe* largely from Plateario; nor in the Breslau MS. of the *Compendium Salernitanum;* but only in the Modena MS. of the Tractatus, representing the Domian redaction. *Cimbar* received the tardy but effectual confirmation of the nineteenth century, when Danielli reported *Zambaron* and *sabbara* (the Arabic *sab r*, aloe) as the vernacular survivals to day in Sicily and Calabria.

‡ Examples include the following (of which the first and second were observed by Camus): "Altea Domiani vocant eam *moloche agrie*," *i. e.*, we at home know the Althea as wild-moloche (mallow); Theophrastus had called it **Μαλάχη ἀγρία.** The

This reviser, Domianus we may call him, seems to have made extensive observations in Calabria and Sicily, and to have added references to localities and to race-names, such as the Apulian,* Lucanian, "Cicilian"‡ (Sicilian) and perhaps others. Camus attributed all of these to his Bartolomeo of Siena; but the Domian names seem to have come from some one whose home had been further south; Domianus may therefore have come from the borders of the Greeks of Calabria to reside later at Palermo and at Salerno.

5. *Tractatus Herbarum*, an illustrated MS.‡ *Circa instans* § pre-

French *Secres* renders Damiani here by *les Donnens*. "Arthemisia; Domiani vocant *grisantemis*;" the χρυσάνθεμον of Dioscorides, corrupted and applied, as identified by Camus, to *Helichrysum Stoechas* L. "Aristolongia longua, Domiani vocant pexionus" (in *Secres*, "Les Romains l'appellent pecionus").

Similar examples may be his "*Grias* in Lucaniam" (= *Pinguicula?*) and his *tridaxaga* (= *Leontodon?*); and such as these:

Galeopsis Tetrahit L., "*Tetrahit*, herba judeyca idem est. (First mention; called in Alphite, *tetrahiscus*; in Italy still, *erba guidaica*.)

Arum, "*iarus*," and "barba Aaron"; and in *Sec.* also "oueil a prestre"; the name Iarus may have been Calabrian?

Hedera Helix L., "Hedera nigra . . . est quot *greci vocant cissommelle*."

Crithmum maritimum L., "Cretanus. Herba . . . alio nomine dicitur *laccih*."

Mandragora "Apollinaris herba . . . Greci vero vocant eam *dicea*."

Allium, "Allium . . . Succus eciam interius ore receptus excutit venenum, unde dicitur *tiriaca* (Gr. theriaca) rusticorum"; in *Sec.* "l'appelleon *tiriacle* a villains."

Rosmarinus officinalis L., Ros marinus . . . Flos autem dicitur *anthos*."

* Some of his Apulian examples are:

Spiraea Filipendula L. (first mentioned here), "Filipendula, que fissalidos alio nomine appellatur in ultra maris partibus et Ampulia."

"*Aloe* . . . reperitur eciam in Ampulia"; in Compendium Sal., Breslau MS., "Aloes . . . Apulia reperitur."

† Some of the Sicilian examples are:

Ferula nodiflora L. "Ferula . . . reperitur in Calabria et in Sicilia" (in *Sec.*, "trouve grant quantité en Calabre et en Cecile").

Sesamum orientale L. "Sisamus idem est qui ginginlena. . . Semen ejus in Cicilia . . . reperitur in magna copia."

Thapsia garganica L. "Tapsia . . . invenitur . . . in Calabria et Cicilia et proprie circa Palormum."

Sugar from *Saccharum officinale* L. "Zuccarum fit de cannamelle (sugarcane) . . . in Cicilia et in Spania; fit versus beati Johannis Baptiste"; in *Sec.* "Zuccara, c'est *succre*."

‡ Codex 993, of the 15th century, at Modena, in the Bibl. Estense; 167 leaves, in Latin, written in 2 columns, in Gothic letters, with numerous abbreviations; arranged alphabetically, in 480 chapters, and 470 colored figures. Only the nomenclature has been published (in Camus' *L'Opera Salernitana*, Modena, 1886).

§ Bartolomeo's work begins like the other recensions, "Circa instans negocium in simplicibus medicinis nostrum versatur propositum." Its end is peculiar to itself,

pared from the Domian recension, perhaps at Siena, by Bartolomeo Mino da Siena,* about 1340. Copyists have corrupted his name into Bartolomeo *Minid'sens* and *Mundsens*.

Bartolomeo's title "Tractatus herbarum Dioscorides et Platonis atque Galieno et Macrone translatate" implies that he made some additions from a text of Galen and from one that he understood to be of Plato but which was really of Pliny. So we find the Ortus when printed, 1491, etc., ascribing matter to Plato which should have been credited to Pliny. He also implies his belief in Macer as a Greek by calling him Macron or Macro,† "*great.*" He evidently thought the Latin poem of Macer a translation from an original Greek ‡ form. He certainly seems to have made industrious use of Macer; for Camus' list of less usual citations made by Bartolomeo, comprising "Pliny, Ipocrates, Appollonio, Platon, Aristotele, Asclepias, Pitagora, Olympia Thebana," are all found in Macer and were quoted by Macer from Pliny. Bartolomeo's other citations may be classed as follows:

2d. Such as already existed in Matteo's *Circa instans*, or in its Giovannian form; namely, citations from Isaac, from Constantino, *mulieres Salernitanae*, Preposito's Antidotarium, the Passionarius, the Flos Medicinae, and some of those from Macer.

' Explicit tractatus herbarum Dioscorides et Platonis atque Galieno et Macrone translatate manu et intellectu Bartholomei minid' sens in arte speciarie semper infusus," listed in the Modena Bibl. Estense catalog of codices, about 1790, as "993," "Dioscorides Tractatus de herbis, cum Platonis Galieni et Macri hujusmodi a Barth; Mundsens."

* Bartolomeo, Camus suggests, was perhaps father of that poet of the 14th century Andrea Mino da Siena, one of the celebrated family of the Piccolomini and surnamed *Ciscranna*, "the folding-chair."

† The Tractatus cites him rarely as Macro, Macron, usually in ablative, Macrone; the Compendium Sal. of Breslau, as Mac. (abbreviation for Macro, *Rensi*); the printed *Circa instans* has guessed at it as "Macrobius." Crescenzi, 1305, as well as Bartholomaeus Anglicus, c. 1256, knew the name as Macro, but were also interpreted by printers as meaning Macrobius.

‡ It is possible that Macer wrote part of his matter in the native Greek of his Calabria and when working it up into the Latin poem, with continuous use of *nos*, *nostri*, in sense of "we who speak Latin," may have neglected to translate certain Greek words as *sciasis*, *cacostomachon*, *incaustrum*, etc.; this would account for their now occurring in the Latin. That Bartolomeo, an Italian enthusiast for manuscripts (he calls himself *in arte speciarie semper infusus*), should have seen among Salernitan or other manuscripts something indicating that Macer was a Greek is not improbable; he may have guessed from that fact alone that the Latin poem by Macer was a translation.

3d. Certain citations quote *Matteo Plateario* who was indeed the source of the whole body of the work. Possibly they are due to Matteo's nephew, Giovanni, who may have inserted his uncle's name when mentioning certain remedies, to show that they had been specially tested and used by him.

4th. Additions made from the *Pandectae medicinae* of Matteo Silvatico, 1313.

5th. Additions and figures from an illustrated Dioscorides; Bartolomeo's text and figures serving, it may be, as chief source for early MSS. of the *Ortus Sanitatis*, perhaps by the year 1400.

From what MS. of Dioscorides these figures * came, demands further investigation. From some Dioscorides many figures in the Modena (1458) and the Kōnigsberg MSS. of the *Secres de Salerne* seem also to have been derived, as well as those in Benedict Rinius' *Liber de simplicibus*, 1415; long before the removal by Busbecq (1522–1592) of the great Anician MS. of Dioscorides, Codex C, from Constantinople to Vienna.

Bartolomeo's Synonyms.—Out of Dioscorides, Bartolomeo obtained the numerous synonyms, which he credits to the "Affricani, Egipcii, Dacii, Ostani, Profeti," and perhaps those to the "Siculi, Corinti and Romani." Some of these may have come, however, with his "Punici," out of Apuleius. He may as a

* Some figures, says Camus, show flowers and fruit both, some so true to the plant as to suggest direct copying from nature, as in Viola, Borrago, Pervinca, Cichorium sylvaticum, Crocus; and in corncockle, rice, fleur-de-lis, strawberry. Many figures include accessories, as the elegant vase for culture of marjoram, the ornate iron coffer for preserving mastic, and very rich chests containing gums and minerals. A number of animals are figured as the frog, stag, elephant, snake, lizard, salamander. Often the rude figure is made interesting by the introduction of some characteristic personage: as a rubricund monk frying dough in his *padella* to make *zibulle;* a vender of cocoanuts with his balances; a cleric with censer of incense; a man heaping up a pile of gold; a man extracting sulphur from the brink of a volcano in eruption; a poor beaver who sacrifices his castoreum to the assailing huntsman; barbarians with black visage and with their dogs, before whom flies a musk deer; a frightful horned devil threatening with his hoof a hare hidden behind a plant of *Sparagi selvatici* with red berries, the plant *Asparagus tenuifolius*, called *Palacium leporis, i. e.*, "rabbit's palace," in the text, still so called in Italy in the time of Caesalpino, 1583, though in *Ortus* the name is transferred to an endive-like plant. This figure was probably added to explain an insertion in the text by Bartolomeo, stating that this is the plant under which the timid hair *secura est a dyapolo.*

Tuscan have added from his own knowledge those which he attributes to the "Tuscii." Of the rest, those ascribed to the "Domiani, Ciciliani, Lucani," and some of the "Greci," were doubtless added by the Domian redactor; and those ascribed to the Spani, Latini, Itali, Ytaliani, Gallii, and part of the Greci, may have been in the MS. from Matteo onward.

6. *Secres de Salerne*, the French MS. translation of the *Circa instans*, made by Le Petit Pelous in central Italy in 1458 (in Siena?) chiefly from the now-existing *Tractatus*, MS. 993, on the blank end of which Pelous transcribed his *Sinonimia*, according to his own signature; the same year. The nomenclatural part of *Secres* was published 1886 by Camus at Modena in his "L'Opera Salernitana," with the claim that the *Secres* is "the primitive text of the Grant Herbier," and proving by comparison the direct derivation of that French herbal from *Circa instans*. The contents of *Secres*, its succession of chapters, its index and its figures, are almost absolute copies from the *Tractatus;* though more prolix. But certain slight differences show that Pelous also used other MSS. of *Circa instans*, from which he made supplementary remarks. 1st. The French *Secres* besides reproducing all that is in the Latin *Tractatus*, adds 8 new chapters, as Stafisagria, Saliunca, Fuligo, Lacca, Siseleos, Sistra, Lepidos calcis, Trifolium, mentioned in the index to the present MS. of *Tractatus* and doubtless presented in Bartolomeo's original.

2d. Certain chapters after translating all the Latin which now remains in *Tractatus*, add *etc.*, as if there were more untranslated.

3d. In chapter *Appium risus*, a quotation from Plateario in the first person is given which is lacking in *Tractatus*.

4th. Pelous adds 7 or 8 new chapters not in the text or index of *Tractatus;* of which Crisomiles, Culcasia, Robellia, are in the Breslau MS. of Plateario's *Compendium;* and Gran froissié, Saponaria, Senechon, Herbe d'ancens, from sources which Camus found difficult to trace.

Besides using other MSS. of *Circa instans*, Pelous also supplemented his author from his own observations and from certain more recent writers whom he quotes; as under Soldanea (= *Convolvulus Soldanella* L.) he cites "un nouvel acteur appellé Gentil

[Gentile de Fuligno, *fide* Camus], and under Spinaca, "un acteur appellé Tacuin."*

The figures in Pelous' MS. *Secres* are less varied than in the Tractatus 993, but better executed and more vividly colored. The artist has however at times represented a plant wholly different from that of the text; as under *Incensaria.* Probably the artist was the assistant Abourg (in the Modena catalog, Abourt), whom Pelous † names as aiding him.

This MS. *Secres* bears the name of two owners, one in a hand of the 16th century, "Livre des simples A Monsr. Durfe," and another similarly old, "Jehan Duboys."

The MS. begins without title, directly as the original *Circa instans*, with "En ceste presente besoingne cest nostre propos et entencion de traitier des simples medicines" and ends with the words "Et pour eviter prolixite cy est la fin de ce livre on quel sont contenus les secres de Salerne. Explicit cest herbollaire," etc.

One other MS. of this French *Secres de Salerne* is known, that

* Either or both of two works may have been meant, the *Tacuinus sanitatis*, a translation of an Arabic work, Tagwim azszihhadt, attributed to Elluchasem Elimithar; or the *Tacuinus de curis morborum corporum*, attributed to Abu Ali Jahia Ben Gezlah; both translations occur in the same codex, 175, in Bibl. Estense at Modena, written about 1290, in part at Aversa, in part at Rome.

† Of the personality of Le Petit Pelous, as the translator signs himself, we may infer with Camus from the form of his words, that he came, not like many writers of that time, from Normandy, but from central France; and that he came, like so many English, French and German copyists of manuscripts in that century in Italy, as a young man to study in one of the Italian universities. Many such students, remarks Puccinotti, copied manuscripts under direction of their professors; and in the city library at Siena alone, among codices of the fifteenth century are some signed by *Conradum de Alemannia, ego Joannes de Guerrandia in Britannia, ego Daniel De Insulis natione Picardus medicine auditor*, etc. Such a student was Pelous, who wrote as his colophon to his *Secres*, "Explicit cest herbollaire Auquel a heu asses affaire Abourg. Il a este escript Mil CCCC cinquante et huit. Et la escript cest tout certain Le patron de sa propre main Pries pour luy Je vous en prye Pour amour De la compaignye. Le petit pelous 1458."

At the end of the MS. Tractatus 993 (of which he was not himself the copyist, its hand is somewhat different and its figures are ruder) Pelous wrote on 25 more folios of the codex, a long Sinonimia (probably composed about 1200 A. D.), adding: "Hoc scripsi totum pro pena date michi potum; Nomen scriptoris, Le petit pelous plenus amoris 1458."

Should any one claim that Pelous was merely copyist and not the French translator as well, Camus observes that the French translation has in its language "an incontestable character of the 15th century," so it could not have been much older than Pelous if not his own work

found by Meyer in the Royal Library of Kōnigsberg, and described by him in his History, 4: 187; containing 202 small folios, written in two columns, without title, but ending, exactly like the Modena MS. with the words "Et pour eviter prolixite cy est la fin de ce livre en quel sont contenus les secres de salerne." The colored figures of exotics and little known plants are quite fantastic, but others, says Meyer, are quite true to nature, as those of *Apium*, *Aristolochia*, *Asarum*. The handwriting was thought by Professor Voigt to be of about 1500 A.D. Meyer judged it must have preceded the first printing of the French herbal derived from it about 1480, and remarked, 1857, that it must have been copied from some lost MS. Camus' discovery of its source in the Modena MS. followed in 1885.

Meyer described it as of 463 chapters, some taken without acknowledgment from Isaac, as those on *Castanea*, *Phascolus*, etc., and many seemingly from an abridged MS. of Apuleius Platonicus, and many from unknown sources. Meyer also particularly remarked the interest of the folk-names, often introduced with the words, "Les domiciens appellent." These we now know are traceable to the *Domiani* of the Domian MS., see p. 266.

7. *Arbolayre*, the first printed edition of the French "*Grant Herbier*"; a rare work, the colophon of which as furnished to Camus by L. Delisle, director of the Bibl. Nat. of Paris, reads "Ce est fin de ce livre ou quel sunt contenus les secres des erbes et communes medicines et drognes a vray translater de latin en francoys et bien corrigees selon pluseurs docteurs de medicine," *i. e.*, the *Secres de Salerne* was used as a ***true translation*** (referred to as *les Secres des Erbes*) and after corrections and additions from many physicians, was printed by the name *Arbolayre*, at Paris, about 1480 by Pierre Caron, *fide* Haller and Meyer. Lacroix, who dates it 1495, less accurately entitles it "a new herbal, called L'Arbolayre, extracted from the medical treatises of Avicenna, Rhazes, Constantine, Isaac and Platéaire."

8. *Le Grant Herbier en francoys* was the title borne by the 8 or 9 rare subsequent editions of the Arbolayre; one at Paris, printed about 1490 by Guillaume Nyvert, one by Jacques Nyvert, one by Jehan Janot, one by Denis Janot and Alain Lotrian, others with dates 1499 and 1521, and another printed by Alain Lotrian

about 1530 which Meyer possessed, being no. 11,669 of Pritzel. This latter contains 176 numbered leaves and 22 more, with poor print and paper, and rude wood-cuts, smaller and poorer than the similar ones of *Ortus*, though really the same figures. It contains 5 chapters more than in *Secres*, 468 in all, Aloe to Zucarum; 4 of the 5 additional having been supplied from *Circa instans*, which it represents quite completely. Its explanatory title states "it contains the kinds, and powers of herbs, trees, gums, seeds, oils, and precious stones, extracted from" many medical works, as of "Avicenna, Rasis, Constantin, Isaac, Plataire et Ypocras." The colophon omits "Ypocras" (Hippocrates), and makes amends by elevating Plateario among the canonized as "St. Plataire."

9. "*The Grete Herbal, with cuts*," of 1516, first book of its kind in English, was a translation from Caron's 1499 edition of the Grant Herbier, with some alterations and additions; was mistaken by Pulteney for a translation of the somewhat similar *Ortus Sanitatis*." Its translator is not known, but its printer, Peter Treveris, of London, is called its translator by Pritzel; he printed it again with figures in 1525, 1526 and 1529. Meyer points out the error of those who thought the translator to be the Louvain professor Jeremias Triverius, who died 1554.

Three other printers reissued it, Laurens Andrews, 1527; Thomas Gybson (with corrections, *Seguier*, 216), 1539; Jhon Kynge (reprinting Gybson's), 1561. Besides the 7 now mentioned, there was an edition without figures, in 1550.

The issue of 1526, in the Oxford University Library, contains 505 chapters each with a small rude woodcut from a block hardly two inches square. It adds to the Grant Herbier 30 descriptions and figures, an address by the printer, and a treatise *De urina*.

Pulteney terms it "the first printed botanical work of any consequence or popularity in England," adding that it "abounds with the barbarous and misspelt names of the middle ages," and quoting the words of Turner's Herbal regarding it, that "as yet there was no English Herbal but one, all full of unlearned cacographies and falsely naming of herbs." Pulteney remarks that the 505 chapters are alphabetically arranged by their Latin names; the English name follows the Latin; the woodcut is prefixed; there is scarce any description, but a statement of temperament, hot or

cold, dry or moist, a prolix account of the diseases for which the plant is applicable, and the method of using it. Over 400 of the chapters represent plants; about 150 are English plants, but are not so designated; many of the figures are imaginary, many are misplaced; several times the same figure occurs used for different plants; those with animals are particularly absurd; that of the mandrake, Pulteney remarks, "exhibits two perfectly human figures, with the plant growing from the head of each"; a familiar mediaeval conception.*

Works which are very largely based upon the *Circa instans* also include the following, which I treat separately:

10. *Natura Rerum*, in Latin, by Thomas de Cantiprato, a Fleming, 1244; never printed.

11. *De . . . plantis*, by Albert Magnus, about 1265; in Latin; printed 1517.

12. *Ruralium*, etc., of Crescenzi, 1305; his Book 6 is very largely drawn from *Circa instans*.

13. *Buch der Natur*, translation of Cantiprato into German of Bavarian dialect, by Conrad von Megenberg, 1349, printed 1475

14. *Aggregator Practicus*, in Latin, author unknown, Italian or German? of perhaps 1350; printed circa 1473? etc., and with German and Italian translations, 1480? etc.

15. *Ortus Sanitatis*, in Latin, author unknown, Italian? of perhaps 1400? printed 1491, and earlier but undated; early French, Dutch and Lower-Saxon translations, printed 1492, etc., more or less close to the original.

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* This 1526 volume is a small folio, of about 350 unnumbered pages; its title is "The Grete Herball which geveth parfyt knowledge and understandyng of all manner of Herbes and there gracyous vertues which God hath ordeyned for our prosperous welfare & helth, for they hele and cure all manner of dyseases & sickenesses that fall or misfortune to all manner of creatoures of God created.

"Practysed by many expert and wyse masters, as Avicenna and other, etc. And it geveth full parfyte understandyng of the book lately prented by me (Peter Treveris) named the noble experiens of the vertuous handwarke of surgery.

"Imprynted at London in Southwarke by me Peter Treveris, dwelling in the Sign of the Wodows, 1526, the 27th day of July."

The Introduction states that it was "compyled, composed, and auctorysed by divers and many noble Doctours and expert Maysters in Medycynes; as Avicenna, Pandecta, Constantinus, Wilhelmus, Platearius, Rabbi Moyses, Johannes Mesue, Haly, Albertus, Bartholomeus, and more other, etc."

See Richard Pulteney, "Historical and biographical Sketches of ... Botany in England": 46–50, London, 1790. See also Meyer, 4: 391.

16. *Gart der Gesundheit*, German translation of the preceding, with modifications, by Dr. Johann von Cuba; 1485, Mentz, and often after, to 1530, etc.

17. *Garde der Suntheyt*, Lubeck translation of 15, but with changes in text and in figures; 1520, "Lubeck in saligen Steffen Arndes' druckerye," folio.

18. *Kreutterbuch*, modified from 16, by Eucharius Rhodion; Egenolff, Frankfort, 1533, 1540, 1550.

19. *Kreuterbuch*, in German, by Adam Lonitzer (greatly modified from 18); Egenolf, Frankfort, 1557, and often after.

20. *Kreuterbuch*, by Peter Uffenbach (modified slightly from 19), Frankfort, 1616, and often after.

21. *Kreuterbuch*, by Balthazar Ehrhart (modified imperceptibly from 20), Ulm, 1737, 1765, 1776, Augsburg, 1783.

GERMAN AND MISCELLANEOUS PLANT-WRITERS.

XLV. HILDEGARDIS

The description by St. Hildegardis,* about 1150 A. D., of 166 native plants of the Rhine provinces, has been called by Meyer "the beginning of German Natural History," and is also noteworthy as one of the earliest contributions made by her sex to botanical knowledge.

She was author of four books "*Der physica*," of which books II and III are on plants; printed at Strasburg by Joannes Schott, 1544, but rare. They contain numerous folk-remedies not from Dioscorides but from the people, and many first-mentions † of important German plant-names. Among the names she uses for plants confused with Aster are the following:

* Born in 1099, at Bechelheim on the Nahe, of a knightly family, she lived a cloister life from her 8th to her 80th year, dying in 1179, having been 31 years an abbess near Bingen, at St. Ruprechtsberg, and for 12 years before, the abbess of the convent at Disibodenberg.

† Sprengel, recounting her "barbarous names," finds in the *Physica* of Hildegardis (his *sanctissima virgo*), the following names used for the first time: Herba Aaron or *Arum maculatum*; Zytvel, *Artemisia Santonica*; Christiana, *Helleborus niger*; Storchenschnabel, *Geum Robertianum*; Razela, *Polygonum Persicaria*; Huofladtheda major, *Tussilago Petasites*; Huofladtheda minor, *Tussilago Farfara*; also Wehdystel, Pandonia, Hunesdarm, Himmelschlussel, mentioned above.

Fridelsouge or *Fridelsauga*,* for *Tragopogon porrifolius*; see *infra*, under *Anguillara*. *Alentidium*,† *Inula Helenium*, the German *Alant*. *Febrifuga* and *Mettra*,† for *Pyrethrum Parthenium*. *Rubea*,† for *Rubia tinctorum*. *Wehdystel*,‡ for *Centaurea Calcitrapa*. *Stignus*,† for *Atropa Belladonna*. *Himmelschlussel*,‡ for *Primula vulgaris*. *Pandonia*,‡ for *Chelidonium majus*. *Hunesdarm*,‡ for *Stellaria media*.

XLVI. ALBERTUS MAGNUS

Albert of Lauingen, commonly known as Albertus Magnus, or as Albert Graf von Bollstadt, remarkable among mediaeval writers for his attention to the physiology and philosophy of plants, was born in 1193 at Lauingen in Suabia (now in Bavaria), was bishop of Ratisbon in 1260, and died in 1280, aged 87.

In his *De vegetabilibus et plantis*,§ expanded from Nicolaus Damascenus, whose work he took to be the genuine work of Aristotle, he devotes the sixth book to individual notices of plants, the only part of his work with which our present subject is concerned, but not that on which he himself set a high value, for of these small details of fact he speaks slightingly, remarking "De particularibus enim philosophia esse non poterit."

Notwithstanding this self-depreciation, this part of his work is of the greatest interest and service, on account of peculiar names and realistic descriptive touches with which his own experience filled it.

To edit this work was one of the fond hopes of the historian of classic and mediaeval botany, Ernest H. F. Meyer, and when his death left his work partly finished it was ably continued by Jessen and published in unusually elaborate completeness, in 1867, at Berlin, under the name "*Alberti Magni . . . De vegetabilibus libri VII*," to the pages of which my references will relate.

Its seventh book treats 398 plants in alphabetical chapters, based primarily on Avicenna, Plateario (in the *Circa instans*) and Isidorus Hispalensis. With the material taken from these authors "he weaves in his own observations, and these often of the acutest,"

* *Fide* Jessen. † *Fide* Meyer. ‡ *Fide* Sprengel.

§ Rarely printed; first at Venice, 1517; by Jammy at Leyden, 1651; and again, the critical edition of Meyer and Jessen, Berlin, 1867, 8vo, 752 p.

as Meyer and Jessen observe, p. 339, while "from Avicenna he takes all he wrote about the medical properties of the plants treated, quoting it with or without use of the identical language."

Considering the beauty of Aster Amellus in the subalpine region, and observing Albert's wide personal acquaintance with subalpine Bavarian plants, we would have expected mention of this Aster, and perhaps its omission does not indicate his failure to notice it but his failure to regard it as of medicinal utility. The wide difference between his treatment of plants and that of Roman and of Renaissance botany is to be noted in the absence from his work, not only of Aster as such, but as veiled under such names as Stella, Bubonium, Inguinalis, Unguinaria, Ynguinaria, or Alibium.

He treats about 23 Compositae, mostly familiar plants like his Enula campana, the most important of which in the present connection are his *Oculus porci* (Tragopogon), see *infra* under *Anguillara*, and his *Rostrum porcinum* (Leontodon), already noticed under Hippocrates, p. 108.

Sponsa solis he uses for Cichorium, as did Plateario, and also for *Calendula officinalis* L., which he says, p. 570, is (like Aster) valuable for poisonous bites: "trita confert morsui venenatorum, posita super vulnus."

Senecio he uses, but Jessen could not decide for what plant.

Policaria, also doubtful; perhaps *Pulicaria vulgaris* Gaertn.

"*Yppia*, quae tanacetum agreste"; *i. e.*, *Tanacetum vulgare* L.*

* Among plants confused by others with Aster, his usage is as follows:

Eryngium campestre L., under Yringum, Iringum or Hyringum, p. 568, confused by him as by Plateario with their "*secacul*," *Pastinaca secacul* Russ.

Geum urbanum L. is his Gariofilata or Benedicta (the Benedicta of Hildegardis; whence its present English name *bennet*). He mentions only two herbs with the odor of cloves, this Gariofilata, and his *Ungula Caballina*, *Asarum Europaeum* L., which has more of the odor, but he says nothing of the odor of cloves in Dianthus nor in roots of Aster Amellus.

Chelidonium seems to appear blended with some other plant unknown, in his singular name of *Venae tinctorum*, Painters' Veins, derived from Avicenna, and by both recommended for the eyes. The name is said by Albertus to be from its use for dyeing and because the plants *extenduntur sicut venae*, p. 578.

Viola, pp. 575–6; of the imported Aster character few traces remain; perhaps the use of his *viola* for *apostemata* or tumors, for inflation of the stomach, and *eminentiae oris*. An echo of the minglings of two plants under the name *viola* is found in his remark that "all parts are certainly frigid and humid, though there are some that call the violet warm."

Camomilla for *Matricaria chamomilla* L. *Cotula fetida* for *Anthemis Cotula* L. *Canuca* perhaps for *Gnaphalium*, *Crocus* for *Carthamus tinctorius* L.; with the usual endivia, cicorea, lactuca, lappa, carduus, centaurea, absinthium, "artemisia," abrotanum, "piretrum," and millefolium, are his other chief Compositae.

XLVII. RAIMUNDUS LULLUS

Raimundus Lullus, 1235–1315, surnamed Palmensis from his birth at Palma on the island of Majorca, in youth a hermit, later a missionary among the Arabians, and finally a Franciscan monk, became known as one of the greatest alchemists of the Middle Ages. Two of the writings which emanated from his monkish cell concern plants directly. One of these, his "Quintessence"* or "Arcana of Nature," arranges plants in "canons" according to temperament or supposed qualities. He does not mention Aster itself; among plants which this survey of Aster history has included he makes the following references:

Canon 8 of Book I, among the 40 plants listed here as "calida" in the 1st degree are *absinthium*, *borago*, *eupatorium*, *camomilla*, *folia gariofilorum*, *sarcocolla*, etc.

Canon 9, warm in the 2d degree, 35 plants, including *polium*.

Canon 10, warm in the 3d degree, *enula*, *gariofili* [*i. e.*, *Dianthus*; see p. 260].

Canon 14, moist in the 3d degree, *flores violae coelestis*, and *violae viridis* [compare Arnald's contemporary distinction, p. 242].

Canon 27, astringents, including *terra sigilla* and *plantago*.

The other work by Raimundus which requires allusion here is his translation of the Greek treatise † known as Kiranides. †

Turego, for *Melissa officinalis*, p. 94, deemed by Jessen a verbal torsion of *Citrago*, Palladius' name for it; but it is almost as likely to be a copyist's perversion of *boracho*, Macer's Calabrian name for Melissa.

* Printed 1541 by the title "*De secretis naturae* sive Quintessentia libri duo sive Naturae Arcanis"; with name of its author in the form "Raimundus Lullus Majoricus." A copy is in the Latimer Clark collection, in the library of the Amer. Institute of Electrical Engineers, N. Y. City.

† This treatise seems to have existed first in the form of a single book (*fide* Meyer, 2: 356), the *Kyranis*, written (or edited from the work of an earlier writer whom we may call Kyranis?) by an alchemist, one Harpocration (not the Alexandrian); and cited (as the *Kyranis of Hermes*) by Olympiodorus, perhaps 425 A. D., together with

Meyer, 2 : 361–6, comments upon some 24 plants which appear in the first book (the original Kyranis) of Raimundus' translation under peculiar names : among which is "Eryngius." This chapter on Eryngium is of particular interest, as showing none of the blending with Aster which appeared in Serapion, the Arabic plant writer of the west; instead, in the Arabic writing of the east (in which form the Kyranides may have existed long before the translation by Raimundus), the blending of Eryngium is not with Aster but with the verbena, and we find the Kyranides using *Centumcapita* and *Peristereon* as synonyms, *i. e.*, *Eryngium campestre* and *Verbena officinalis*.

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a lost work by Harpocration, the *Liber Archaicus*, of similar character. Harpocration may have been but a redactor, and if but half a century older than Olympiodorus, may have been living as late as 370 A. D.

It was thought by Meyer that a reference in Tertullian may have applied to the original work which came to be called Kyranis. If so, Harpocration may have made additions to the work of some unknown Greek writer whom we may call Kyranis, and who may have written before Tertullian, *i. e.*, before 200 A. D.

A second redaction of Kyranis followed much later, perhaps 700 A. D.; its unknown author we may call Kyranos (or, with Raimundus, Kiranus); the treatise now consisted of four books or *Kyranides*, *i. e.*, the amended Kyranis and three additional books : first mentioned by Georgios Synkellos in 792.

The third redaction, *fide* Meyer, was the translation by Raimundus Lullus, and seems to have been made 1280 or later. This translation was attributed by Aldrovandi in the 16th century to Gerardus Cremonensis; but was credited, as edited by Rivinus, to one "RA. PA. infimus clericus,"—which gave to Meyer the hint that the translator was Raimundus Palmensia; in which theory he was confirmed by finding in it traces of the alchemist, of Spanish (or Italian ?) idioms and of Arabic, and many other features pointing to Raimundus as translator. Raimundus cites Simon Januensis, his Italian contemporary, but seems not to know Albertus Magnus, the great Bavarian of a half century before.

By writers from Olympiodorus to Scaliger and Salmasius, the Kiranides had been variously attributed to an Aegyptian, Arabic, Syrian, and Persian origin ; it remained for Meyer in 1855 to show that it was probably written at first in Greek, with quotations from Dioscorides, Pliny and Theocritus, with arrangement of its articles on plants, minerals and animals in the order of the Greek alphabet, and with indications of Greek conceptions and names.

‡ What is called its first edition appeared as "*Kirani Kiranides*," or "Liber physico-medicus Kiranidum Kirani...aureus gemmeusve," 1638, without place ; with addition of notes, entitled the "*Rhyakini coronides*," written by Bachmann (Rivinus) the Leipzig professor, who here styled himself in Greek fashion *Rhyakinus*. Meyer commented, 1855, on the poor quality of the notes, paper and printing, the great rarity of the book and the ever advancing price. A copy was offered in London in 1901 at 21s. A 2d edition, Frankfort, 1681, printed by "Jo. Just. Erythrophilus," bore the title "Mysteria physicomedica," etc.

XLVIII. ALBERTUS AND HENRICUS DE SAXONIA

Albertus Magnus, like most great writers, was doomed to have his fame beclouded by spurious and unworthy works ascribed to his pen. One of these, the *De mirabilibus mundi*, is of unclaimed authorship; another, the *De Secretis Mulierum*,* a treatise on embryology (of great interest in the history of medicine, though diffuse and wordy like much mediaeval speculation), was by one Henricus de Saxonia, a pupil of Albertus Magnus, and who may have studied under him together with Thomas de Cantiprato at Cologne. A third, the *De virtutibus herbarum*, better known as *Liber aggregationis*, an oft-printed † but most worthless ‡ production as Pritzel deemed it, is now ascribed to one Frater Albertus de Saxonia,§ a master of philosophy, says Echard, at Paris, about 1300 A. D.,

* Earlier printers issued the *Secretis* and the *Aggregationis* separately; my edition of the former, "*Albertus Magnus* de Secretis Mulierum cum commento," Rome, 1499, has no hint regarding the dated *Liber aggregationis* of Strasburg of 1493, of the existence of which its writer seemingly was not aware.

This 1499 edition of the *Secretis* is a thin quarto of 112 unnumbered pages, in four books; it begins with the words "*Tractatus* Henrici de Saxonia, Alberti Magni discipuli, *de Secretis Mulierum*, quem ab Alberto excerpsit."

The discursive commentary by some unknown Joannes, which accompanies the text, cites the ancients as Hippocrates, Aristotle and Galen, also Macer, Avicenna and Averroes: it bears the name "*Expositio super* Henricum de Saxonia de secretis mulierum."

Among plants mentioned by this commentator Joannes, is his list of aphrodisiacs in chapter 3 of Book 1, including "piper, pillegium, testiculi vulpis, crocus orientalis, semen lini," but with no mention of the eryngium by which Phaon charmed Sappho.

Later than the commentary, the printer prefixed another title, "*Albertus Magnus* de Secretis Mulierum cum commento"; merely a device of the printer to gain notice; and so far successful that it has caused the identification of his work with Albertus Magnus on the part of some bibliographers to the present time.

Meyer had an earlier edition, printed by Anton Sorg, at Augsburg, in 1489 (and another, at Frankfort, 1615), which agreed with the preceding (Meyer, 4: 70). A still earlier edition, which has recently come to America, is that entitled "De Secretis Mulierum et Vivorum," thought to have been printed by Reyser at Eichstadt about 1479.

† An early edition of the *Aggregationis* is that ascribed to Reyser at Eichstadt, of about 1478.

‡ "*Libri miserrimi*," Pritzel's no. 11849—a thin octavo of 31 unnumbered pages, without name of place, writer or author.

§ "Echard discovered (Meyer, 4: 83) among its rare MSS. (one in Paris and two in England) an English MS. of uncertain age claiming to be written, not by Albertus Magnus but by Frater Albertus de Saxonia."

who may have been another pupil of Albertus Magnus, and who is known as a commentator on Aristotle. His *Liber aggregationis* is cited in the *Aggregator practicus*, perhaps 1350 A. D.

Early editions of these works were separate; later ones * combine the three. The last, that on plants, which from its name might be expected to be an extensive treatise, is but a meagre affair and full of superstition; it describes the medical use of *Chelidonia*, *Melisophylos*, and a few other plants,† only sixteen in all, and then tests the herbs of the planets, ascribing its *Affodillus* to Saturn, *Poligonia vel Corrigiola* to Sol, *Chrynostates* to Luna, *Arnoglossa* to Mars, *Pentaphilon* to Mercury, *Achaton vel Jusquiamus* to Jove, and *Pisterion* (*i. e.*, verbena) to Venus.

Superstition and magic permeate the entire *Aggregationis*,‡ and it bears the lineaments of the astrologer throughout. It is in fact an offshoot of the race of Hermes Trismegistus, its lineage tracing back to the Kiranides, which spoke in similar tone of the plants of the planets a thousand years before; and to Raimundus' translation; which had just made its appearance. Its author, "egomet Albertus," as he styles himself, acknowledges his indebtedness to Kiranis in set terms, remarking in his preface that he will place in his book the sorcerer's plant lore which he "finds in the book Chyrandis and in the book Alcorat"; the first of these no doubt referring to Raimundus' Latin version of the Kiranides.

The medical uses described are chiefly those of magic rather than of medicine, and it is remarkable that this slight work, describing only about twenty plants should, have sufficed to eclipse

* As in 1601, and in the "*Libellus* de Secreto Mulierum et de Virtutibus Herbarum," Amsterdam, 1740, *ex bibl.* Columbia,—which treated of plants on pages 118–130 only.

† They are Eliotropia, Urtica, Virga pastoris, Provincia (periwinkle), Lingua canis, Jusquiamus, Lilium, Viscus quercinus, Centaurea, Salvia, Nephta, Verbena, Rosa, Serpentina: besides Chelidonia and Melisophylos.

‡ Meyer, 4: 83, claims that Albertus de Saxonia could not have been a German, for he says of a plant "dicitur Martegon id est Sylphium quem admodum scribitur in lingua *Theothisca*"; and could have had no conception of Greek, for when in using Albertus Magnus, he attempts to quote Greek names, he mixes those of Greek and Latin origin inextricably. Albertus Magnus had said "*Jusquiamus* is a Greek name"; but Albertus de Saxonia has it "*Jusquiamus* is the Latin name of a plant which in Greek is *Ventosius*." Albertus Magnus had said, "the plant which is called *Quinquefolium* in Latin, is named in Greek *Pentafilon*"; he of Saxony has it "*Quinquefolium* is the Greek name of a plant which in Latin is called *Serpentaria*."

the great genuine work of Albert Magnus with its nearly 400 plants, and to do that for over 500 years, or until in 1836 Meyer made known the true proportions of the two to the world. Albertus Magnus had been held in veneration in other lines of mental activity; but his plant writings remained substantially unknown till Meyer's rehabilitation. It was a singular fate that had befallen them; only one writer of their time, Crescenzi, is known to have mentioned them, and they passed into neglect. Meanwhile the three spurious works were constantly reprinted, and finally becoming combined, they formed one farrago of diffuse inanities, which did much to cast disrepute upon the real learning of the Middle Ages, —obscuring even the towering forms of such men as De Lauingen, Crescenzi and Plateario, looming behind its little shadow.

XLIX. DE CANTIPRATO

Earliest of the three contemporary encyclopaedists who shine in the bright but transient glow of the thirteenth century Renaissance, was Thomas Brabantinus or Thomas de Cantiprato, called Cantimpratensis, from his home at Cantimpré, Belgium. Born 1201, at Leuwis, a little town near Brussels, entering school at five years, he was first an Augustinian, then, about 1232, a Dominican monk, became a scholar and associate of Albertus Magnus at Cologne, made journeys in various lands, especially about Germany, lived later at Paris, and died in 1270. He was called by Roger Bacon "one of the few men of Grecian learning of this age."

His great work, still unprinted, "*Natura rerum*,"* is a treatise on natural history in nineteen books, written 1230 to 1244.† For

* It begins "Incipit prologus in librum de natura rerum," Cracow MS., *fide* Pfeiffer.

† So concluded Pfeiffer in 1861; Meyer, 1857, had thought it written about the same time with Bartholomaeus Anglicus' similar work (which would be about 1256), and claimed that neither was cognizant of the other; but see *infra*, p. 287. At the end of his nineteenth book De Cantiprato remarks of his purpose, that "the aim I have kept before my eye was the Christian doctrine of Augustine,—'It would be most useful if any one would undertake the labor, to assemble in one volume the natures of things and especially of animals.' Therefore I have assembled them, nor did Gaul and Germany suffice me, which are among all regions the most copiously supplied with books; but also in transmarine parts, in England and in the Orient, I accumulated books written concerning nature, and from all these I extracted the better and the more suitable things. Whoever may come upon my collections, let him give me his prayer, that according to my labor, so may God render me reward in the future. Amen."

fifteen years he labored, writes Pfeiffer, "to gather the sum of the natural history of the middle ages into one compendium."

The nineteen books treat first of the human body, and the races of man, then of quadrupeds, birds and other animals, trees and herbs, waters, precious stones, metals and climate, the planets, storm and thunder, the four elements, etc. Three books relate to plants, the 10th, *de arboribus communibus* (beginning leaf 151 of the Stuttgart MS.), the 11th, *de arboribus aromaticis* (leaf 158), and the 12th, *de herbis aromaticis et medicinalibus* (leaf 164–169).*

The work is best known to the world by its use by Conrad de Megenberg in 1349 as basis of his *Buch der Natur*, which, as reprinted by Pfeiffer in 1861, brings the substance of de Cantiprato into light, though in rearranged and expanded form, and with additions.

Several MSS. of De Cantiprato exist in Paris. One in the library of the University of Cracow has an added 20th book, concerning eclipses, the motion of the stars, etc., which is not by Cantiprato but is the *Sphaera naturalis* of Joh. de Sancto Bosco or "Johann von Holywood."† One in Paris (dated by its scribe in 1276) is also in 20 books. †

De Cantiprato describes 114 plants ;‡ does not mention Aster; and is apparently free beyond most authors from traces of blending of other plants with the common Aster.§ His plant chapters are very largely drawn from Platearius, with Pliny as ultimate source ; only 16 sources are mentioned, chiefly Latin (with Galen), including Palladius, "Ysidorus," and "Jacobus Aconensis Bishop de Vitriaco."||

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* Quoted in the original Latin by Pfeiffer (in his reprint, 1861, of the Buch der Natur, p. xxxii), from the Stuttgart MS. (a MS. of 200 leaves, of the 15th century).

† Pfeiffer.

‡ Meyer.

§ *Fide* the *Buch der Natur*.

|| Vincent de Beauvais mentions De Cantiprato, writing himself but little later, but covering much of the same ground. Meyer thought that the other contemporary encyclopaedist Bartholomew Anglicus, showed no knowledge of the existence of De Cantiprato. But it appears to me that phrases which Bartholomaeus uses of the violet and of "*flos campi*" are very suggestive of De Cantiprato's similar remarks about those flowers, and are indications of topics suggested by perusal of De Cantiprato.

L. BARTHOLOMAEUS ANGLICUS

What may be called the popular cyclopaedia of the middle ages, is the work *De proprietatibus rerum* by Bartholomaeus Anglicus. Bartholomaeus was cited by authors from Leland to Fabricius as "Bartholomaeus de Glanvilla or de Glanvyle, a Franciscan monk of about 1360." Latterly proof has been adduced that he must have written about 1256* and in Paris: and two undated MSS. may be as old as that year.† His learning was very wide; his mind fully saturated with Aristotle; his remarks on plants a quaint mixture of sagacity and childishness. He has no chapter on Aster, and few on the Compositae. His work is in Latin, in 19 books of which the 17th is on plants and describes 144 species largely from Plateario and from Constan-

* The true date of Bartholomaeus as about 1256 has been reached by a most interesting series of steps, detailed by Meyer. After being taught to believe his date as 1360, Meyer found two documents in the Paris University of the press mark 1300 and 1303 which contained Bartholomaeus. A dated MS. of Bartholomaeus' proved to be 1300. Two undated MSS., on examination, seemed to be earlier, from 1260 to 1300. In England, a MS., bearing the author's name as Bartholomaeus Anglicus, proved to bear also the date 1296 (two others bear his name as Bartholomaeus de Glanvilla), Echard then pronounced Bartholomaeus' date as 1256–1296. Finally Jourdain, followed by Meyer, limited it to about 1256, observing that Bartholomaeus knows nothing of Vincent de Beauvais (though reputable authorities have been so hasty as to assert that "Bartholomaeus' work is principally taken from Vincent de Beauvais"), or of Thomas Aquinas, Roger Bacon, or Aegidius Romanus, who wrote immediately after 1256, and that Bartholomaeus quotes Aristotle from a poor translation out of the Arabic when a better from the Greek direct appeared in 1260–1267.

† Bartholomaeus Anglicus has also by confusion with Bartholomaeus Pisanus, been credited with the authorship of the "*Sermones* de contemptu mundi," first printed at Milan, 1498 (a copy is in Columbia Univ. Libr.); of "*Liber* conformitatum vitae Sancti Francisci," a rare folio of Milan, 1510, edited by Frater Franciscus Zeno; with reissues to 1620; also of "*Summa* venerabilis Fratris Bartholomaei de Sancti Concordia, Pisani, ordinis fratrum Praedicatorum," Paris, without date; but presumably earlier than his "*Summa seu Pisanella*," Venice 1474, 1476, Milan, 1479. All of these however were by Bartholomaeus Pisanus. Two others of similar name are to be distinguished also among early printed books; Bartholomaeus Brixiensis, a copy of whose *Concordia* or *Decreta Gratiani* (Basle, M. Wenssler, 1481), is in Libr. Union Theol. Sem.; and Bartholomaeus de Chaimis, whose *Interrogatorium seu Confessionale* is represented in Libr. Union Theol. Sem., by a copy issued at Venice in 1480, and in the N.Y. Public Library by the earlier issue by Valdater at Milan, 1474. The sermons of still another Bartholomaeus de Ursinis appeared at Naples, 1473, as the *Quadragesimale*; and an *Epitoma Medicinae* by another, one Bartholomaeus de Pisis, was of that period also.

ius Africanus, but citing over 100 other authors;* especially liny, Aristotle and Dioscorides, through Latin translations; gether with a great number of almost unknown mediaeval riters. His great work has been 12 times translated; first ito English † at Berkeley Castle, at command of "Syre Thomas orde of Berkeleye that made me to make this translation," 1st Feb., 398. The Latin original was often printed before 1500; first y Caxton ‡ (fide Lowndes; and so Wynkyn de Worde, Caxton's upil and associate, expressly states), at Cologne, about 1470, 55 ines § to the page.

* Especially from the Norman Alfred [de Sarchel, a translator of Pseud-Aristotle], rom "Aristotle de plantis," Pliny, Dyascorides, Isaac [Ben Honein, especially his *In diaetis*], Huguitio Pisanus [a jurist and grammarian], Papias [his *Vocabulist*], etc., with Oribasius, Aegidius medicus, Stephanus, Strabus, Bernhardus and Rabanus,—to use Bartholomaeus' spelling. He quotes from a number of previous English writers, as Robertus Lincol', Gilbertus and Michael Scotus, Alquinus (Alcuin), and Simon Cozi; and from the lost *De naturis rerum* of Alfred Anglicus, *i. e.*, Alfred bishop Cridiensis in Devon, of the 10th century, earliest perhaps of English names to be coupled with nature, unless we make exception of Alfred the Great, of the translator of Apuleius into Anglo-Saxon, and of the lost writers of the early medical formulae which became incorporated in the Anglo-Saxon Leechdoms of uncertain date.

† Lowndes (accepted by Proctor, 1898) states that this translation was made by John of Trevisa—Watt, in his Bibliotheca Britannica, in 1824, said that the translator was Thomas Berthlet; apparently a false reading for Thomas Bercklei, *i. e.*, Berkeley, by whose command the translation was made.—A new English translation appeared in 1582, "Batmann upon Bartholome his book the Propr. Rerum, newly corrected, enlarged and amended, with such additions as are requisite unto every several booke." Lon. 1582, folio.

‡ Hain, 1826, ascribed this, his No. 2498, to Cologne, without printer; Johnson, Typographia, Lon. 1824, deemed it the work of Caxton. Sotheby, 1858, approved by Lowndes, 1859, considered the question settled in favor of Caxton, after comparison of fac-similes of type, and accepted in full the reference to it by Caxton's disciple, apprentice and successor, Wynkyn de Worde, who wrote, 1495,

> "And also of your charyte call to remembraunce
> The soul of William Caxton, the first prynter of this boke,
> In laten tongue at Coleyn, etc."

Recent biographers of Caxton reject or ignore this explicit evidence. The latest to pronounce on the matter, Proctor, 1898, indexing two copies of this in the British Museum (and one in the Bodleian Libr.) leaves it uncertain, classing it by its type as by his 8th printer of Cologne, the unknown printer of the *Flores Sancti Augustini*.

§ My citations are from my copy of the so-called second Latin edition, the 61-line edition, printed 1468–70 by Berthold Ruppel of Hanau, first printer of Basle, who was Printer's assistant to Gutenberg in 1455 (See "*Early Printed Books*," by E. Gordon Duff, Lon., 1893; and "*Index* to Early Printed Books in the British Museum," by Robt. Proctor, Lon. 1898). The last Latin edition appeared 1619 at Frankfort. The

Much of the puerile in Bartholomaeus * is borrowed from Isidorus, Bishop of Seville in 596, whom he took as his standard for names, and whose name sometimes appears in full as Ysidorus, but usually in abbreviated form as Ysi, Ysid, or Ysidor, or disguised as Ysyder. From Isidorus he takes his absurd etymologies, as that of *aster* a star from *auster* the south,* his "*stellae, a stando sunt dictae,*" * and his punning explanation of *sidera*, his third name for stars, "*Sydera a considerando dicta,*" † because "*considered* by mathematicians in making reckonings!"

Little that is new occurs among Bartholomaeus' plant chapters; perhaps the most distinctive so far as name-form goes, are his *Quisquilia* (certain doubtful foreign seeds), his *Thimiama* (a preparation made for use at the altar, of galbanum, incense, etc.) and his *Armonium*, from Syria, which appears to be the gum called *Armoniacum* ‡ in *Circa instans.*

More familiar names disguised § by his spelling are his Sico-

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first edition in English was of 1495, in black letter and pronounced "the most magnificent production of Wynkyn de Worde's press" (Lowndes). Columbia University and the N. Y. Public Library are the fortunate possessors of two of the few copies existing. A copy from the library of the late Henry Newnham Davis sold in London, Nov. 1900, for £212. A fourth copy in N. Y. is the Latin edition by Koberger, Nuremberg, 1483; in the N. Y. Public Library. The French translation made 1392 by Corbichon, was first printed at Paris perhaps 1480, and six times at Lyons before 1500; the first Belgian, 1479, printed by Bartholomaeus de Engelsman; the first Dutch, 1485, the first Spanish 1494, etc.

* Lacroix's remarks on Bartholomaeus, although based chiefly on his puerilities, are so good an index of the usual modern attitude to him that I quote them: "Another book inferior to the above [the debatable Herbarius ascribed to Jacobus de Dondi] in every respect but very much better known, was that of Bartholomew Glanvil, an English monk, who compiled for the benefit of the wealthy, an encyclopaedia of natural history, filled with popular stories and a mass of worthless erudition [a remark more applicable to his animal than to his plant chapters]. This singular work . . . had a great reputation so late as the 16th century. It was translated into French by Frere Jean Corbichon, under the amphibiological title of "Proprietaire des choses" at the request of King Charles V, and it was one of the works most frequently published in different languages when printing was first invented."—An antidote against too great disparagement will be found if needed, in William Morris' admirable sketch introductory to recently published selections from Bartholomaeus.

† Fol. 74, book 8.

‡ Produced from *Dorema Ammoniacum* Don.

§ Some of his authors are also well masked; as his Pictagora for Pythagoras, Harl; medicus for Haly, to say nothing of Ypocras (Hippocrates) and Ysaac, Plat, Dyas; and Ysyder, mentioned above.

morus, Rutha, Rampnus for rhamnus, Kastanea, Ysopo and Isopus for hyssop, Tycorea for chicory, Draguncia for arum.§

We glance a moment at the treatment of Aster relatives by Bartholomaeus, venerable among Englishmen for his antiquity if not for his sagacity.

Relatives of Aster

Artemisia, est mater herbarum.

Abscinthium, or Absinthium.

Centaurea major = *Centaurea* sp. His "Centaurea minor," which he also names "herba amarissima" or "fel terrae"—Plateario's names—is doubtless meant for *Erythraea Centaurium* Pers.

Enula (*Inula Helenium* L.) "est duplex, ortolana et campana." "Collect the root in the beginning of summer—*principio estatis*, and dry it in the sun against coughs and chills," etc., etc., "as is written in Macro,* 'Enula campana reddit precordia sana.'" †

"*Elytropia*, *Solsequium* sive *Tychorea*," are his names for chicory.

"*Flos campi*," which Albertus Magnus and De Cantiprato were using at about the same date for *Tragopogon porrifolius* L., may have been also meant for that by Bartholomaeus, fol. 146, c. *De flagello*; writing "*Flos campi*, Flos specialis, sic dictus, quia per se crescit in locis incultis nec sulcatis"; a trace of influence of De Cantiprato upon Bartholomaeus.

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* "Marco" here in the 61-line folio is evidently a printer's or scribe's transposition of Macro, the form which Matteo Plateario used in *Circa instans*; not Macr', the form occurring in the Breslau codex of Plateario.

Bartholomaeus seems to have understood Macro as an abbreviation for Macrobius, and accordingly Macrobius and not Macer appears in his concluding list of authorities (fol. 215 of the 61-line Latin edition; and so in Wynkyn de Worde's first English edition).

† This line occurs in *Circa instans*, in Plateario's chapter Enula. It is the first of the three lines on Enula in the Regimen Salerni, where the other two lines are the lines which end the genuine chapter of Macer Floridus on Enula (as decided by Choulant). All the conditions suggest that the line Bartholomaeus cites from Macer had long been an integral part of Macer's poem. Sylvius in 1667 credited the three lines on Enula in the Regimen Salerni to "Macer, lib. I, c. 20," using probably the Cornarius edition of Macer, 1540, or the Ranaovius edition of 1590, in both of which the chapters are arranged in "books," Enula occurring as chapter 20 of book 1 in both. The latter edition was made from a different MS., the codex Bredenbergensis, which may prove to represent the text of Macer at Bartholomaeus' time in other variants besides that of the precordial line.

Lactuca, of which he quotes one etymology from Isidore that is correct, "Lactuca ex lactei humoris substancia est vocata."

Lappa (Arctium Lappa, etc.) "of many kinds and all medicinal; also called *Philantrophos* because it clings to garments as with affection; and also called *Virgulta caballina* *; cures struma; *et execrabilia vitia stomachi curat.*" The chapter is taken from Pliny, Dioscorides and Isidorus; retains nothing of Pliny's Lappa canaria or Argemon with its Aster mixture; but adds from Plateario "Lappa or Lappacium consumit apostematum."

Plants Confused with Aster.

"*Plantago*, arnoglossa or agni lingua ut dixit Ysidorus li, xvii; . . . est herba maxime conveniens medicine. Nam vulnera sanet etiam canis rabidi . . . tumores sedat . . . venenos repugnat . . . apostemata dissipat . . . , ut dic[itur] Dyas[corides], qui multriformiter laudat virtutes magnificas arnoglossae."

"*Celidonia* is an herb of yellow flower and fruit, staining the hand that touches it." Its "notabiles virtutes" are reported from "Dioscorides, Plinius and Platearius"; but imported Aster characters no longer appear.

Cariophilum = cloves; not Dianthus nor Aster root nor Geum.

Viola retains practically no imported Aster characters; none at all unless that of relieving inflation and hastening delivery. He begins by adopting Isidorus' foolish etymology, "Viola propter violenciam odoris sic est nominata; ut dicit Ysido." The interesting feature of Bartholomaeus' chapter on Viola, is the addition of a new portion which reveals Bartholomaeus' own affection for the flower, and which lost no quaintness in the Berkeleyan translation made into English a century later, which runs, as Wynkyn de Worde printed it in 1495, in this wise: "Violet is a lytyll herbe in substaunce, and is better fresshe and newe than whan it is olde. And ye floure thereof smellyth moost; and so the smelle thereof abatyth hete of the brayne; and refressyth and comfortyth the spyrytes of felynge; and makyth slepe; for it

* From the breadth of the leaves of the burdock? since *Ungula caballina* had now long been in use for Tussilago and with Bartholomaeus for Asarum, on account of the broad leaves; *Coltsfoot* being its modern representative.

helyth and emptyth and moysteth the brayn. And the more vertuous the floure thereof is, ye more it bendyth the head thereof dounwarde. Also floures of spryngynge tyme sprynge the fyrste and shewyth somer. The lytellnes* thereof in substaunce is nobly rewarded in gretnesse of savour, and of vertue, as Dyascorides and Plinius meane." † *De proprietatibus*, bk. 17, c. 191.

Aster Samius, the white astringent earth stamped and exported into Greece since the time of Aretaeus onward, from Samos, now in Saracen dominion, still appears in Bartholomaeus as *Terra sigillata*, of which he remarks that "that kind is specially called *Terra sigillata*, and is the true earth, singularly frigid and dry, which is called according to Platearius, *Terra Saracenica* or *Terra argentea*, which indeed is somewhat whitish, aromatic and clear; its most potent property is to constrict. For its powder worked up with white of egg arrests the flow of blood from the nostrils. Very powerful it is also against inflation of the feet and against rheumatic joints if its plaster is bound upon the suffering spot; as is said in Platea[rius]." ‡

Reputed Aster-powers.—Bartholomaeus has much to say of the mad dog's bite, for which aster, plantain, and onion were classic remedies, and for which we find him still recommending his *plantago* and *allium* though aster has dropped out of his knowledge. His general remedy for poisonous bites is to secure vomiting or evacuation; but for the *morsus rabidi*, which is "*mortifer et venenosus*" § he would "sear the wound with fire or iron"; or, says Bartholomaeus, "use a compound cataplasma, made from a river-crab with Genciana and

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* Parvitatem eius in substantia, magnitudo odoris pariter et virtutis nobiliter recompensat; ut dicit Dyas.

† The violet was also the plant which aroused Matthioli to one of his most extended allusions to his personal observation of flowers; this violet which kindled his enthusiasm was a white species, unmentioned he remarks (Latin edn. of 1560, pp. 574–5) by Dioscorides, "growing so close and full in April in the Araniensian fields above Trent as to seem from a distance like linen sheets spread on the ground (*extensa lintea*)." Matthioli described and figured in his Italian edition of 1568, four other species of violet, including the pansy, which he calls Iaccea (the Jacea of later botanists) or Herba della Trinita (from its three colors), and his "altra Iaccea," which seems to have been *Viola arvensis* L.

‡ Fol. 131, in book xvi; taken largely from Platearius.

§ Fol. 63, book 7, and fol. 64.

juice of Caprifolium;"* or "use a *tyriaca repressiva*, a decoction of rue in wine; or rub on dried figs with ground hazelnuts; or take balsam in a mother's milk; but take quickly,—*periculum est in mora*. Or use the antidote of onions ‡ called Tyriaca rusticorum, the countryman's poison-cure; indeed without an onion in it, it is said it will still avail if hen's lard be put in it; for so it is said according to Constantinus in his *Liber de simplici medicina*."†

Viper-bites, he would cure, not with aster, but with a "Tyriaca" of "Genciana" in wine or "with rue, mint or onions, well-salted"; so says Constantinus, who would use as well a compound of hen's brain and pomegranate leaves.‡ His "Draguncia" or Arum is particularly efficacious; "from its odor serpents flee." (Book 17.)

Ulcers and tumors, as the *struma* and *apostema* which we have seen treated with aster poultices by Greece and Rome, are by Bartholomaeus treated with "Tyriaca cum vino"§ taken, like the chief part of his medical chapters, from Constantinus Africanus. So he prescribes it for the tumor which he calls "*noli me tangere*," and for his *cancer*, which he remarks is "vero magis."‖

Sciatica, for which Pliny recommended the aster, Bartholomaeus cures ‡ with *galbanum*,¶ also recommended by Pliny for the same.**

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* So in his liber xvii, de Allio, "Allium is powerful against all venoms, so that not without cause it is named *ab antiquis doctoribus*, Tyriaca rusticorum; ut dicit dyas. Maxime autem valet contra morsum et venenosum canis rabidi."

† Bartholomaeus also praises for poisonous bites the *efficacia* and *virtus* of "calamentum" dried, caulis (the cabbage), orobus seeds, "nasturcium," "porrum," "aristologia," walnuts cooked up with rue, the root of "aspagus" (asparagus), "genciana," "menta diptanum et multa alia infinita," adding "Enim multa sunt venenosorum pericula; ideo divina bonitas multa super addit antitoda (sic) et remedia"; fol. 63.

‡ Dicit et Const., ... de frondibus malorum-granatorumque; fol. 64.

§ Fol. 63.

‖ Fol. 62.

¶ The dried juice of *Ferula galbanifera* Boiss.

** Indeed in case of galbanum, which happened to stand next to Aster Amellus in Vergil's series of remedies for bees, it is remarkable how close its reputed properties approach those of Aster throughout; Pliny (24, 13) saying of galbanum, "serpents are driven away by its fumes; it neutralizes poisons, cures scorpion-stings, is used in protracted deliveries, and for sciatica, ruptures, ulcers and inflamed tumors; its odor is efficacious for epilepsy, hysterical suffocations and faintness at the stomach." Every one of these properties was ascribed to Aster also by one or more of the Greeks or Romans. That Galbanum is still in use as an application to ulcerated sores is noted by Fée.

*Bartholomaeus' great indebtedness to Salerno** by no means diminished when, from his treatment of diseases, so largely taken from Constantinus, he passed on to take up individual plants, which are very largely described from some MS. of Platearius' Circa instans.† For example, his whole long chapter on his "Aloa" of Indica, lign-aloes,‡ is, as he himself says § at its end, transferred from Plateario; that on his "Aloe" of India, chiefly *Aloe vulgaris* L., is, he says, at the outset, wholly extracted || from Dioscorides, Plateario and Avicenna.¶

Traces of Bartholomaeus' own delight in special flowers creep out occasionally, though his purpose was simply to write of the plants of Scriptural mention and of such others in England as were of special importance. His own feeling for nature occasionally gets the better of these restrictions as we see in his *Violet.* So in his chapter *De flagello*, fol. 146, speaking of twigs and sprouts, he cannot forbear to turn aside for a slender-stemmed red field-flower, perhaps scarlet poppy, remarking "Est itaque Flosculus stipite quidem gracilis et modicus, flore rubicundo." Again in the same chapter he remarks, "Among other flowers place first the blos-

* "Haec omnia de Dyas. et Plat. et Avicenna extracta sunt."

† With such differences as that where under Aloa, Plateario quoted from Constantinus without specifying the book, Bartholomaeus looked up the reference and quotes the book, "Constantinus dicit in de graduum," and under Aloe, the three kinds which Plateario calls, fide the Modena MS., "Cicotrinum, Epatis, et Caballinum," appear in Bartholomaeus, fide the 61-line edition, as "Concitrinum, Epaticum, et Caballinum, ut dicit Platearius."

‡ *Excoecaria Agallocha* L.

§ "Huc usque Platea."

|| "Haec omnia de Dyas. et Plat. et Avicenna extracta sunt."

¶ *Of Macer's peculiar plants*, Bartholomaeus retains these traces: Lolium of Macer, "Zizannia herba (or) lolium." Boracho; neither this nor Melissophyllum occurs. Brassica or Caulis of Macer appears as his "What is called *Bratica silvestris* or *Caulis per se nascens*, has stronger effects than the ordinary *Olus* (cabbage)—"for Caules are vulgarly called by the name of Olus"; as says Ysido...Pliny says it avails against poisons and the bite of a mad dog; and the odor of its seeds makes serpents fly." Bartholomaeus has some sapient remarks on his Olus or cabbage, saying "Olus ab olendo dictus, Ysi[dor]. On apples and cabbages the antediluvians were nourished, as the animals are on grasses and herbs; as says Ysido. All herbaceous plants (*omnis graminosa in terra nascentis*) which can be cooked *que...coquenabilia*—and are fit for food for men, are in general called by the name Olus; but Caules are so in particular; as says Ysido. Olus is an herb "*melancholicum, generans, horribilem odorem faciens*," ut dicit Ysa[ac] in diet[is]...Est autem herba qua profecit per transplantacionem."

soms of lilies, roses and violets, especially for wreaths of noble worth, to be made beautiful by them." The culture of garden plants and trees, like the almond,* was of great interest to Bartholomaeus, and in his chapters on the rose and the lily, after speaking of their primacy among flowers, he shows his great interest in their cultivation by the length to which he describes the effects of pruning and forcing, remarking of the "*Agrestis rosa*" that cultivation produces in that wild rose more frequent mutations than in the *rosa vera* of the garden.† The rose is on the whole the first of flowers to him, "Flos rose ‡ inter flores optinet † principatum," its "multitudo" of flowers charms his eye, and its medical value his mind, observing "the rose is a tree which is medicinal from flower, to leaf, to seed."

LI. VINCENT DE BEAUVAIS

Vincent de Beauvais, or Vincentius Bellovacensis, was the latest and most copious of the three great contemporary encyclopaedists. Sprengel calls him "the Pliny of the middle ages, a bookish man, and one who quoted nothing except on authority." He is said to have been a Dominican monk and a bishop, and to have died 1264; was from Beauvais in the department of Oise; his great "Speculum naturale" is one of the three parts § of his encyclopaedia || the "Speculum majus tripartitum," printed first and best by Mentelin, Strasburg, 1473–6, in 33 books, || six of which treat of plants; his sources being the Bible, the Church fathers, and to a less degree the Greek, Latin and Arabic writers, including Dios-

* Saying "Amigdalas Grecum est que Nux longa vocatur. Hanc Nuculam multi vocant quasi minorem nucem; unde de qua virgi," quoting from Ysidorus, and then quoting its culture from Platearius; see *supra*.

† Remarking that when the "*Rosa silvestris*" is planted in the gardens and cultivated, it is with it just as with the grape vine; if it remains neglected and is not purged from its superfluities (pruned) it degenerates into the wild."

‡ For *rosae* and *obtinet*.

§ A fourth part, the Speculum morale, attributed to him, is a later addition.—*Meyer*.

|| "The enormous necyclopaedia, in which he says the mandragora has the shape of a human body; the Scythian lamb is an animal plant attached to earth by stem and roots; the tree of life or weeping tree is still to be found in Eastern harems," *Lacroix*; —all of which are the familiar mediaeval fables with which monks could then fill their books if they would avoid the contemporary imprisonment of Roger Bacon for heresy.

corides and Pliny.* Some of his more unusual citations are of special interest; he quotes twice from the *Dialogus de rerum causis* of the early English traveller Adelard † of about 1100; and quotes Thomas de Cantiprato, whose ink was hardly dry.‡

Vincent de Beauvais treats of plants in 828 chapters, some of which describe two or more plants and some none (as chapters like his *De varietate fructuum*); book X, 156 chapters, on "herbs of the earth;" XI, 171 ch., "herbs of the gardens and fields;" XII, 134 ch., "seeds, grains, and fruits;" XIII, 112 ch., "trees;" XIV, 115 ch., "cultivated and fruit-bearing trees;" XV, 140 ch., "fruits of trees and plant-juices." He makes no mention of Aster by name, nor under the names *herba inguinalis, ynguinalis* or *unguinalis* which were so soon to reappear in the *Ortus*. The nearest approach made to Aster is under Eryngium, book X, ch. 156,§ *De ypoglossa et yringion.*

But it is doubtful, however, if anything in that chapter is really an importation from Aster: it is probable that the confusion between Eryngium and Aster did not spread till Simon Januensis translated Serapion, about 1292.

Other plants noticed by Vincent include his Absinthium, Arthemisia, Abrotanum, Gariofilatum, Butalmum, Camomilla, Coniza, Enula, etc. *Etrabith* (= tetrahit). *Sarcocolla* est arboris spinosae gumma. *Turbith*, quoted from Plateario as root of a

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* Also Aristotle, Avicenna, Isidorus, Palladius, Cassius Felix, Macer Floridus and Varro; rarely from Ipocras (Hippocrates), once from "Euribasius" (Oribasius); also from Haly, Ysaac, Rhases.

† Adelard Anglicus, "one of the first Englishmen after Alfred the Great to concern himself with nature," *Meyer*. He travelled through Greece and the Orient.

‡ He also quotes Haymo or Isaiam, Bishop of Halberstadt, the friend of Rhabanus Maurus and scholar of Alcuin: from one Gulielmus de Conchis, who died in 1150, author of a work "*De naturis*"; from Helinandus, a historian, who died 1227; and often from a work he called *Herbarius*, but which differs from the *Herbarius* or *Aggregator practicus* which we now possess.

§ From this I quote, italicizing the parts which repeat aster characters:

"Dyascorides, Yrgingi vel Yringion sive Nux-agrestis herba est spinosa [17 lines of description properly applicable to Eryngium follow; then, among colors mentioned, the blue species which became confused with Aster appears], quasi albam aut viridem cum colore *iacinctino*.... Virtus est illi naturaliter calida, ideoque bibita deducit menstrua. Urinam cit inflamationes ac *tortiones stomachi solvit.* Epaticis prodest adhibita. *Morsibus venenatis occurrit cum vino bibita.* Meliusque potest id agere id addatur ei semen pastinacae. *Denique cathaplasmata et colle suspensa corpus limpidiat.*

tree growing in India and Arabia, etc.; and from Constantinus and Avicenna.

Vincent's series of herbaceous plant-chapters begins,* bk. X, with Absinthium, and ends, bk. XIV, with Zuccarum; just like *Circa instans*, and many an *Herbarius* of the following centuries.

LII. CRESCENZI

Pietro Crescenzi,† unique among Italian botanists, and called "the restorer of agriculture," completed, about 1305,‡ his great

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* I quote from the 1473 edition by Mentelin, father of printers at Strasburg; a copy of which is in the Libr. Union Theol. Sem., N. Y., and another in the Latimer Clark collection, forming part of the "Wheeler Gift" to the Amer. Institute of Electrical Engineers, N. Y. This edition includes the 33 books in two volumes, royal folio, 66 lines to the page; without date, printer's name or place, paging, catchword or signature; vol. i has 18 books, 318 leaves, and begins "Incipit, speculum naturale Vincentii beluaces"; vol. ii has 15 books, 327 leaves. Described as "of the greatest variety," "a superb monument of the typographic art,"—"a more noble work than the present was never produced by the first printers."—it is of special interest from the claims set forth in behalf of its printer Mentelin to have antedated Gutenberg; or with more probability to have been his early associate.

A later copy by Mentelin, 1476, is in the collection of the Grolier Club. A 1474 edition, in 52 lines, at Augsburg, was printed (*fide* the type) by Antoine Sorg. The celebrated Nuremberg Chronicle printed by Koberger was a derivative.

† Petrus de Crescentiis in original Latin form; Pietro Crescentio in original Italian, 1478; this is also Sansovino's form, 1561; Pietro Crescenzi, the form used by Meyer and others, and in the 1605 or Florence edition; some scholarly Italians still say either Crescenzi or Crescentio indifferently.

‡ Too little is known of the life of this lover of nature. His birth and death and much of his life were at Bologna; his youth was given, as he says, to logic, medicine and natural history; and in after years he returned from his labors as a jurist to his love for the country, finishing his *Ruralium* when past 70, as he remarks in his prefatory letter to Aimericus de Placentia, head of the Dominican order, who had been elected so at Toulouse, 1304. He dedicated his work to King Charles II of Sicily, who died 1309. He was himself of a Ghibelline family, and speaks of peace existing at the end of his labors. Meyer observes that this remark fixes the date of his writing as before March, 1306, when the ever-smouldering feud between Guelf and Ghibelline factions broke into active hostilities. Documents of the time styled him *Judex*, and editors, *Senator of Bologna*; he himself simply terms himself *Civis Bononiensis*. Near Bologna he had a villa, 10 miles out, at Urbizzano. Feuds at Bologna kept him much of his life way, it is said for 30 years, acting in legal capacity as assessor before various *podestas*. Besides life in other parts of Italy, he had spent much time in Provence, to which region many of his agricultural observations relate. He lived to extreme age, if the received dates for his birth and death as 1230 and 1321 are correct; the latter rests on his will, made, he says, "in full health of soul and body," in June, 1320; and on its probate by his son in February, 1321.

work on agriculture, written in Latin in twelve books, speedily translated into Italian, a work modelled on the plan of Columella and Palladius, and ending with a Farmer's Calendar; but unlike them in containing a formal alphabetical series of chapters descriptive of separate plants. His work included also many original observations and results of personal familiarity with nature. It was first known as *Ruralium commodorum libri* (earlier Latin editions), or as *De agricultura* (Latin editions of Basle, and earlier translations *),

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Some facts were gathered regarding him from the Bologna archives by an unknown biographer and prefixed to the Bologna edition of his works in Italian; 1784.

It is said by Tiraboschi that Crescenzi left Bologna in 1272, the year of the expulsion of the Lambertacci faction.

He was probably son or nephew of that Crescenzi of Bologna, who died while ambassador to Venice, 1268.

Meyer, 4: 140, points out that three types of MSS. of Crescenzi have given rise to three classes of the printed text, those of Augsburg, Louvain and Basle, as follows:

1471, Augsburg, by Johann Schüszler, with title *Petri de Crescentiis, civis Bonon., Ruralium commodorum libri duodecim.*—Reissued with figures (but no date); and in 1493 at Mentz (Hain's 5832).

1474, Louvain, by Johannes de Westfalia; with similar title; without signatures; (two others undated were deemed younger by Meyer because with signatures); seems to have been made from Crescenzi's original MS., at least the passages inserted in it from Palladius often present better readings than any of the MSS. of Palladius himself, and were accordingly used by his editor Schneider. The same printer issued it at Louvain again in 1478, and some one at Strasburg in 1486.

1518, Basle, by Henric Petri; also 1538, 1548; has a chapter *De riso*, lacking in the others; bore the title "*De agricultura*," by the "*Agricolo et Philosopho Petro Crescentiensi, Qui haec Senator Bononiae*," etc.

* TRANSLATIONS INCLUDE:

Old Tuscan translation wrongly attributed to Crescenzi himself and made in or about his own time; printed by Nicholaus Laurentii, Florence, 1478, and often, Meyer using one of Venice, 1542. One of the important monuments of the Tuscan tongue. Title, "*Libro della agricultura.*" Other editions are those of Vicenza, 1490 (by Leonhard Achates of Basle), Naples 1724, Bologna 1784, Milan 1805.

Second Italian, "*Pietro Crescentio* tradutto nuovamente, per Francesco Sansovino," printed by him at Venice, completed early in 1561; its dedication to the Duke of Urbino, Nov. 29, 1560; a quarto of about 520 pages, finely executed, with nearly 200 small woodcuts of plants; these figures are different from those included in the contemporary edition of Matthioli's *Commentary*, Venice 1560.

The figures are often excellent but sometimes strangely misplaced, as when the figure of the moss Polytrichum is used to illustrate the chapter on Maidenhair, here called Capelvenere (Capillus Veneris). For Celidonia he gives figures of *Chelidonium* and of *Ficaria* both, explaining that either is used but the larger is better. The translation was made doubtless from the Augsburg edition, both agreeing in having two chapters on Pianteggine, while the Louvain form has but one.

a title represented by "*Della villa* of *Pietro Crescentio*" in the Italian version by Sansovino. It holds a deservedly high place among the achievements of that too brief outburst of literary activity which formed the period of Dante, Boccaccio, Petrarch, and Chaucer. J. M. Gesner included this work in 1735 in his *Rei Rusticae Scriptores.*

Crescenzi's 136 plant-chapters form * his 6th book; he begins each with the plant's name and gives often a few synonyms and a few characteristics, but is mostly occupied by the direct utility of the plant to man,—which is chiefly medical and for which Plateario is his constant source, though cited by name only thrice. Book V treats of 52 kinds of trees in 53 chapters; book IV of the vine; book III of grasses and forage plants, in 23 chapters. Meyer made an unprinted synopsis of 292 plant-species in Crescenzi: had he included varieties the number would have been over 350.

As a whole, Crescenzi's work is based on the Roman writers on Agriculture, on Palladius, Columella, Varro and Cato; with much indebtedness to Albertus Magnus and some to Nicolaus Damascenus; and very much to Avicenna, who is cited by name over 80 times, or next in frequency to Palladius.†

Crescenzi does not seem to have known either of the three encyclopaedists, though writing, 1305, only a half century later,

Third Italian translation by '*Nferigno, i. e.*, Bastiano de Rossi (Florence 1605); praised by Meyer, but confounded by the Biographie Générale with the preceding; it is, instead, a revision of the 1478 or Tuscan translation; title, "*Trattato del Agricultura.*"

Old German translation, with cuts, Strasburg, 1493, 1499, etc., etc., and Strasburg, 1518, as "Von dem Nutzen der Dinge."

Old French translation, a MS. called "Rustiçan," of "Pierre de Crescens," made at desire of Charles V, in 1373, printed by Verard, Paris, 1486, as "Prouffits champestres et ruraulx, par Pierre Crescensi"; again, entitled "Le bon Mesnaiger" (with additions by Gorgole Corne), Paris, 1540.

Polish translation, Cracow, 1539, 1571.

* I quote chiefly from my copy of Sansovino's Italian edition, Venice, 1561.

† Among earlier plant writers Crescenzi used Pliny, Galen and Dioscorides; also a *Historia Alexandri;* among later writers he cites from Constantinus, from Gerardus Cremonensis (his translation of Abulcasis) and from Macer, whose name appears as *Macer* in the early Latin editions; but as *Macro* in Sansovino's Italian version, 1561, which is presumably the name the poet bore in Italy when not in Latinized form; in the Latin Basle editions, 1518, etc., Macro had been misunderstood (as earlier by Bartholomaeus Anglicus) and is erroneously printed Macrobius.

while Thomas de Cantiprato had presumably finished his *Natura Rerum* in 1244, Bartholomaeus his *De proprietatibus* about 1256, and Vincent his *Speculum* about 1260. But Crescenzi seems to have known the traveller, Jacobus de Vitriaco, De Cantiprato's patron, to whose trophies brought from the Orient Crescenzi seems to refer in his chapter on palms. He knew Simon Januensis, for his chapter on the Ivus or the yew, *Taxus baccata*, doubtless derives its name Ivus from Simon's remark in the *Clavis* that "Taxus is popularly called Yvo or Yvum." Probably it was through Simon's translation that Crescenzi knew Serapion, whom he quotes concerning his *Cuscuta* (bk. 6, ch. 29). He also cites, as *Burgundius*, an unknown plant writer,—the translator, concludes Meyer, of some Geoponic work from Greek into Latin, which appears by name of *Liber de Vindemio.*

CRESCENZI'S "IRINGIO"

Crescenzi does not mention Aster by name; his chapter 7, book 10, *dell' Astore*, relates to a sparrow-hawk, Lat. *astur*. Writing his plant-descriptions largely from Plateario,* and himself also living south of its normal range, it was natural that Crescenzi should devote no special chapter to *Aster Amellus*. He should naturally be expected to come closest to Aster in his chapter on Eryngium, his Iringio and Irincii. In such a chapter Serapion, or his translation at least, had blended Aster with Eryngium, and as Crescenzi knew and used Serapion, the repetitions of such a blending might have been looked for in him. But he was too wary; at least, little definite trace occurs; Crescenzi's references to Eryngium as an aphrodisiac † may have come from Pliny as well as Serapion; the

* He does not fail to copy Plateario in his account of Nenufar, "of two kinds, one with purple flower, which is better, one yellow which is not so good; the *Saracini* use it for headache; it is excellent for fever." (Both are in error in the two colors for Nymphaea, remarks Meyer, 4: 158.) But he is more careful about trusting Pliny, and trims down his story of the swallows' use of celandine to what seems to his good judgment the real use that Pliny might have meant, saying "Pliny says that with the juice of Celidonia the swallows (*rondini*) restore the eyes of their young to their primitive state, when they may chance to have become coated over in any way."

† Observing "iringio" is "ottimo al coito"; later he adds that from Satyrion (the orchid Serapias) they now make similar aphrodisiacs, making *testicoli confetti* with honey; but they are better if the confection has dates added to it, or pistache and honey," bk. 6, c. 108.

chapter otherwise is taken up with description of methods of preserving the root with ginger, honey and pepper. Perhaps the most remarkable feature of his Eryngium chapter is his nomenclature, beginning with the opening sentence:

"Irincii et Salvinca * eadem est herba." The names appear as Iringio and Saliunca in the Italian translation by Sansovino, 1561, but both had been replaced in the original Italian of the 14th century by Calcatreppa,† now the modern Italian name for *Eryngium*‡ *campestre* L.

Simon Januensis had used the name "Irringus"; probably Crescenzi's use of "Irincii" was an outgrowth of this; and it was in Simon's rendering that Crescenzi came to know Serapion. Either Crescenzi or his unknown early Italian translator seems also to have been influenced by Plateario's blendings; Plateario said "Yringi, Calcatrippa, Cardinelli and Seccacul are all the same," and is interpreted by Camus as intending *Centaurea Calcitrapa* L.; Crescenzi's original Italian version adhered to the same equivalence, *i. e.*, rendering Eryngium by Calcatreppa.

Whether Plateario also identified Saliunca or Salvinca with Eryngium is doubtful; his *Circa instans* seems to have used it for something else, and has the name only, as a heading without description; the French translation, the *Secres*, has a figure for it which Camus identifies with *Sanicula Europaea* L., a plant perhaps formerly confused with Eryngium on account of its bur.

Crescenzi seems thus to have confused *Sanicula*, *Eryngium* and *Centaurea Calcitrapa* under Eryngium. Serapion, with his translator Simon Januensis (and later his follower Matteo Silvatico), had established such a confusion, only that instead of Sanicula the third member of their mistaken equation was Aster Atticus (see pp. 74 and 183). Matthioli, in 1560, besides blaming those who confused *Calcitrapa* with Eryngium, added that "Serapion regards

* *Salvida* in Augsburg edition, 1471, and Basle, 1518; seemingly a form unknown elsewhere.

† Matthioli claimed this was no Eryngium, saying, page 364 of his Latin edition of 1560, "Some make the mistake of thinking Cacatreppola is the same with Eryngium."

‡ Centum-capita, by Pliny and in the Renaissance used for a white Eryngium, was not so used by Crescenzi, who followed Plateario in making it a synonym for the asphodel and wrote (edn. Sansovino, fol. 120), "*Anfodillo* or *Centocapi* or *Albutio* are the same."

among authors, most of all, Dioscorides and Pliny; *quos maxime in simplicium historia sequitur.* But it is also to be noticed that Serapion confused Aster Atticus or Bubonium with Eryngium, deceived by the similarity of its stars; by which they imitate each other, and in their blue color; although the whole plant of the Bubonium has not one horrid spine on it."

CRESCENZI'S RELATION TO ASTER-USES

Among potencies formerly credited to Aster, Crescenzi makes the following recommendations: I use the Italian names adopted by Sansovino, 1561.

For *aposteme* (apostema of the Greeks), use Camomilla, Mandragola, Mortella (quid est? Belladonna?) Pianteggine or Lingua d'Ariete (Plantago), Papaver, Loglio or Zizania (to this form Macer's *Lolium* * had now come), Striggio † or Solatro or Morella and Viola.

To *confortan lo stomaco*, Melagrane (pomegranate) Ella (Macer's *Elna, i. e., Inula Helenium* L.), Gariofilata (*Geum urbanum* L.), Porcellana (purslane), and Vetrivola (*Parietaria*).

Against serpents, Serpentaria or Colombaria or Dragontea (*Arum*).

Against a mad-dog's bite, etc., Gentiana, and Cavolo (Macer's *Caulis;* including our cabbage, which is Crescenzi's variety *Capuccio;*—he remarks "Capuccio is of the nature of a Cavolo)."

For quinsy, Celidonia, and Pianteggine (Plantago).‡

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*Lolium temulentum; of its fame as an intoxicant Crescenzi writes "*oppila la mente*, la perturba, et l'inebbria" (*Sansovino*).

†The Strignos of the Pavian Erbario, Strignum of Macer; chiefly *Solanum nigrum* L., sometimes covering *Atropa Belladonna* L., and so here.

‡PLANTS CONFUSED WITH ASTER.—Other plant names of Crescenzi (in Sansovino's Italian form) of interest to the student of Asters include:

Robbia (Rubba in his Latin) (Rubia); ch. 6, c. 104; free from the confusion with Aster which appeared later.

Ella (=*Inula Helenium*) "bears its crowns not in summer but through the greater part of the month of October in grassy land." "Take it with wine, that *di campagna*," contra il dolor dello stomaco; 'L'Enule campane sanno i precordi sani'" (Macer's Ace).

Gariofilata (Geum) "is so called perhaps because it has an odor resembling that of *garofali* or according to the taste and effect."

Lingua d'Ariete or Pianteggine (Plantago); he cites Dioscorides as using it for mad dog's bite; says it is chiefly useful to dissipate tumor and *posteme* and quinsy; so

LIII. SIMON JANUENSIS

After centuries of disuse in Italy, Apuleius' name Aster reappears about 1292 in the *Clavis sanationis* of Simon Genuensi or Januensis, lexicographer,† botanical investigator and papal ch lain. He found the plant name *Asterion*, in a mutilated copy Apuleius Platonicus which he was using. The name of his auth

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repeating its continuous parallel with Aster which may have occasioned its borrow of the name Aster as well, at the hands of Apuleius (*supra*, p. 171).

Papaver. "Pliny, Dioscorides and *Macro* speak of the juice of the poppy an its heads, whence opium, which provokes to sleep. The Salernitan *Meisterinnen*, *femine di Salerno*, use the powder of poppy. Use it against the *posteme*."

Sposa del Sole or Cicoria or Incuba or Sulsegnio (Cichorea).

Viola; no mention is made of its Aster use for epilepsy; nor other common pr erties except for the *posteme* and to provoke sleep: many properties genuine to it mentioned, and the mode of making *sciropo violato* and *olio violato*.

Crescenzi is also an early example of the names *Fegatella* or *Epatica*; Senecio Tetrait or L'Herba Giudaica, etc.

* Simon Genuensis (i. e., dweller in Genoa—Lat. Genua—so correctly printed the earliest edition) or Simon Januensis (so printed in the 2d ed. and others, so p ing into citation) or Simon Geniates (for Simon Genoa-born) or Simon de Cordo (pr ably from a Genoese village of his birth) or Simone da Genova—known as the L cographer, and once a Minorite monk, became court-physician to Pope Nicholas whose pontificate was 1288–1292. His friend Campanus, himself Canon of Paris, st that Simon Genuensis was subdeacon and chaplain to Nicholas IV, and was Cano Rouen. Besides authorship of the *Clavis*, Simon Genuensis was translator of Arabic words, under the names "*Serapion de Simplicibus*" (see p. 183) and A Qâsim's "*Liber Servitoris*." Meyer also found in Paris a MS. Glossary by "Sir de Janua on Alexander Iatrosophista" which DuFresne had used in preparing his G sary of Mediaeval Latinity.

† His *Clavis Sanationis* or *Synonyma Medicinae*, an encyclopaedic dictionar medicine, characterized by Meyer as full of errors and containing more grammar t nature, but certainly a monumental work, Meyer himself remarking of its value 165): "Earlier than Caspar Bauhin I know no more reliable aid to the older synony than this Clavis sanationis."—Campanus refers to his receiving a copy of the Cl through the Prior of Paveranum; an old Genoese cloister, probably the place in Ge to which Simon retired in 1292 on the death of Nicholas IV.

The Clavis was first printed, 1473, at Milan, by Antonius Zarotus of Par (Pritzel; Meyer has it that it was printed at Parma); again, 20 Apr. 1474, at Pad brought out by "Peter Maufer, Norman, of the diocese of Rouen," seemingly editor and printer both; a copy says Meyer, exists in the Königsberg Library, and "one of the greatest of literary curiosities." A 3d edn., 1486, Venice, of wh Meyer possessed a copy, was printed by De Tridino, from Montferrat. Four la Venetian editions followed, to 1514, with additions from Pliny by De Varolengo 1514),—and becoming blended with Matthaeus Sylvaticus.

was wholly unknown to him: he describes the MS. as
ıt book from which the title was missing."

Januensis produced a greater effect upon the history of
vever, through his Latin translation of Serapion's Arabic
cibus: thus making Serapion's Aster-chapter the com-
erty of Europe. As now known,* and especially as in-
by Matteo Silvatico, this Aster-chapter confused Aster
gium; whether any of this blending was due to Simon
or was wholly present in Serapion's original, remains to
ined, when, if ever, an Arabic MS. of Serapion can be
l.

Januensis was indefatigable in his search for the plants
cients as recorded in their writings. He knew the then
s of Celsus; he used many ancient MSS. which are now
; he knew the now unknown works of the Pseudo-
nes and of Cassius Felix; he made diligent study of a
ch he calls *Butanicus de simplicibus medicinis*, and of an-
k without title which he refers to as a work "*de simplici
copiosus in hoc re*"; and he used two Latin translations
rides which science would give much to recover. One
ı, which Simon considered† the later, was alphabetic,
lest existing codices are to-day, but contained far fewer
han the other Latin translation, which Simon deemed the
ınd which was divided into books, but was at that time
l of six books; looking as if to the five universally ac-
ged books of Dioscorides, one (but not both) of the two so-
ırious books was added; and Meyer had believed that one
ould not be of the same authorship as the other. (See

n Januensis was equally indefatigable in his endeavor to
lants of the ancients for himself.‡ He was the first, says

ts discussion under *Crescenzi*, p. 297, and under *Matteo Silvatico*, p. 304.
n's preface to the Clavis Sanationis.
n Januensis among the many travellers of that century of restless activity
ation, was the one traveller to make his results of permanent botanical
. It will be of interest to note how he compares with the other explorers of
of the century beginning 1220. (He had been long preceded by the English
raveller Adelard, of about 1100 A. D.; see p. 293, n.).
Jacobus de Vitriaco, a French monk, who had been Bishop Jean d'Acre,
n 1220, dying at Rome in 1224; author of a history of Jerusalem, "Gesta

Meyer,* "to undertake those journey-labors of which the following centuries were full." He "herborized," says Lacroix,† "in the Aegean islands and in Sicily"—as Sprengel remarks,‡ "ut plantas in loco natali observaret." From Simon's own preface Meyer quotes him as saying that "for almost thirty years he had followed the investigation of the right names of medical plants and of economic plants, and with that aim he not only made diligent study of the works of the Greek, Roman, Arabic and later writers, from which he made a long catalog and which he compared with each other, but also out of many different quarters of

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Dei," printed at Hanover, 1611; with "brief botanical part, not a whole page;" was revered by Cantiprato; "knew Greek and Arabic; but mixed the seen and unseen, the truth and the fable." *Meyer*, 4: 111.

1246, John de Piano Carpini of the Grey Friars, was sent as ambassador to a Tartar chief from the Pope; his "Travels of Carpini" was translated by Vincent of Beauvais.

1253, Guillaume Picard, another Grey Friar, and Guillaume de Rubruquis, a Franciscan, were similarly sent to Tartary by St. Louis, *Lacroix*.

1260? Pierre Ascelin, a Franciscan, sent to Mongolia by the Pope, *Lacroix*.

1260, Nicolo and Maffeo Polo, Venetian brothers, leave Constantinople for commercial projects in the Crimea, and finally to Bokhara and thence to the Court of Kublai Khan, from whom they returned in 1269 with Kublai's request from the Pope "for 100 educators." Two Dominicans sent soon turned back.

1271, Marco Polo, son of Nicolo, begins his famous journey to Kublai Khan, with his father and uncle, reaching him 1275, starting home 1292, all reaching Venice 1295. His "Travels" were first taken down from his dictation in 1299 in French, while a prisoner in Genoa.

1280, "Gilbertus and Henricus de Arviell travelled from England, Gilbert through Greece, Henry through Asia, their object being to study plants and prepare a botanical treatise," *Lacroix*. "An Englishman of the name of Henry Arviel, who had travelled much, and resided for some time at Bologna, about the year 1280. He left a MS. *Botanica, sive Stirpium Varia Historia*," Pulteney, 1: 22, quoting from Bishop Tanner.

1321, Marinus Sanutus, the elder, surnamed Torsellus, travelled to the Orient in 1321; his "Liber secretorum...Terrae Sacrae" was printed in 1611.

1318, Odoricus de Porto Naonis, or Odoric of Pordenone, the first to go in Marco Polo's footsteps; a Franciscan monk, born 1286, missionary to China and Thibet, died 1330; author of a description of his journey, by way of Constantinople, Trebizond, Ormuz, Malabar, Ceylon and China; described the "Vegetable Lamb" which soon began to appear figured, as a plant-animal monstrosity.

1336, William of Boldensele; a traveller and writer respecting the way to the Holy Land; from whose work and the preceding it is claimed that the celebrated and popular but fictitious Travels of Sir John Mandeville were compiled, professedly the experiences of a knight starting for Palestine and India from St. Albans, in 1322.

* Meyer, Geschichte, 4: 165.

† Lacroix, History of Science and Literature in the Middle Ages.

‡ Sprengel, Geschichte, 1: 283.

the world, through men who went there or who came thence, he pursued his inquiries, yea, to such an extent that he roamed through mountains and woods and fields and coasts in the companionship of an old Cretan, to search out the plants, to learn to know their Greek names, and to obtain knowledge of their medical properties."

In short, the conclusion of Sprengel was that Simon Januensis and Matthaeus Sylvaticus were, "without doubt, the most celebrated writers of their age."

LIV. PANDECTARIUS OR MATTEO SILVATICO

Next among authors mentioning the Aster is Matteo Silvatico, commonly cited as Matthaeus Sylvaticus or as Pandectarius,* of about 1313, a Mantuan physician, resident at Salerno, where he continued the traditions of that center of mediaeval plant-study, and maintained its ancient botanic garden, in which he cultivated such plants as Colocasia † and experimented with seeds ‡ brought from the Aegean. During previous centuries the School of Salerno had already produced its long line of botanico-medical celebrities; in him it now reached its best known botanical outcome, and for 200 years more his *Liber Pandectarum* § was regarded all over Europe

* Matthaeus Sylvaticus, generally cited as *Pandectarius* or *Pandecta* or *Autor Pandectarum* or simply by his great work as "*Pandectae Medicinae*"; born perhaps as early as 1270; was making botanical observations in 1297 (as he says when describing the plant he called Bruculus—*i. e.*, broccoli?) and is claimed to be mentioned in a Salernitan document of 1337 as "Matthaeus Silvaticus Salernitanus, Doctor in Physica"; and again in 1342 as "Matthaeus Silvaticus de Salerno Miles et Regis physicus"; but perhaps these last two references belong to a son. He dedicated his Pandects, perhaps in 1313, to King Robert of Sicily, who reigned 1309–1316; they were quoted by Petrus de Abano, who died 1316. He has been said to be the Matthaeus Sylvaticus who is mentioned as physician and professor of medicine at Milan in 1367 and 1388; but the physician of Milan may more likely have been son or grandson. We know little else of him, except that he travelled in Sardinia and some say in Tunis.

† Pandects, c. 197. Colocasia was perhaps first introduced to Salerno by him; it does not appear to have been cultivated by the Plateario family, and was not mentioned in *Circa instans* till it was inserted in the French translation of 1458.

‡ Seeds of the plant he calls, c. 134, *Cantalidis;* probably, says Sprengel, *Athamanta Cretensis.*

§ *Liber or Opus Pandectarum*, often printed before 1500; the first edition, perhaps as early as 1470, is without date, place or title page, has 724 chapters, was probably printed at Strasburg, was edited by Matheus Moretus Brixiensis, who refers to "the uncertainty as to the author, whose name he is informed by one worthy of cre-

as a great authority. He owed, however, his special debt as an author to Simon Genuensis, whose dictionary had served as pioneer where his was to follow. Simon was, at least as claimed by Meyer, the superior in insight and in critical talent. Matthaeus Sylvaticus, remarks Lacroix, though having many fine plants in his Salernitan garden, could not get their botanical names right. Sprengel chides him for confusing *Inula* with *Laserpitium*; however, men of better opportunities were still confusing *Inula Helenium* with *Aster* 200 years later. Sprengel blames him again for thinking that *Rubia tinctorium* was the same as *Isatis;* but 200 years later, men were still confusing *Rubia* with *Aster* (because of its radiate leaves, like stars) though without even the excuse of common properties as in *Isatis*. Fuchs reproves him with regard to Aster itself, claiming that when he was describing the *Alibium* of the Arabs and identifying it as *Eryngium*,* he was really describing Aster Atticus without knowing it. This passage forms the 34th and last chapter of Fuchs' Annotationes, 1531, his first work, printed in "*De vera cognitio*" of Brunfels, p. 152, as an appendix to tom. ii, of Brunfels' *Novi Herbarii*. Fuchs' remarks about *Alibium* as synonym for *Inguinaria* or *Aster* are as follows:

"*De Alibio*, Autor Pandectarum in litera A, *Alibium* falsissime pro *Eryngio* interpretatur, quando sit ea verus herba, quem *Inguinaria* Latinis dicis. Id quod in hunc modum ostendimus. Cum Arabibus, Aliben vel Alhaliben † sit inguen, aut abscessus qui fit in inguinibus, hoc quod etiam Pandectarius fatetur, consequit necessario, ut Alibium sit Inguinaria herba; quae id nominis fortita est, quod prosit inguinibus."

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dence, was Matthaeus Sylvaticus." This and three other undated editions were in the hands of Meyer. The first dated edition was of Naples, 1474, as "*Liber cibalis.*" Editions 1498 and onward were largely blended with the *Clavis* of Simon Genuensis. His arrangement is alphabetical, naming the plant in Arabic, Greek and Latin, following with a description, from Dioscorides, Pliny, Serapion, etc., then with the properties, and lastly the enumeration of diseases for which the plant is used.

* Eryngium or Iringo was in ancient and mediaeval lore the center of much fable; Brunfels (tom. iii, p. 60) calls attention to the belief that Phaon secured the favor of Sappho because he carried this magic root about him.

† A little after the introduction of Arab medicine the word *Alipta* for a medical preparation came into use as *Aster* for a similar compound had been used among the Greeks; Petrus of Apone writes of an *Alipta confita*, about 1290, and the glossary known as Alphita, of that century, has *Alipta muscata*.

LV. AGGREGATOR PRACTICUS

Of all much-vexed subjects in early botany, the next work to be mentioned, the work which calls itself the Aggregator Practicus, has perhaps given rise to the largest number of uncertainties. Contenting ourselves at present with conclusions, we may say it is an alphabetical series of 150 uniform plant-chapters with figures, from Absinthium to Usnea, each plant being allowed two pages, the text restricted to the medical uses and chiefly extracted from Plateario, Matteo Silvatico and Serapion; followed by 96 other chapters without figures, of which 60 relate to plant products, gums, etc. It is a work cast in the Salernitan mold, may have existed as a Latin MS. as early as 1350, and is now known to us as a small quarto volume, either in Latin, German or Dutch. Its author and his nativity are unknown; but whether written in Italy or in Germany as variously claimed, it is certainly a late outcome of the Salernitan school, and Meyer censures it for making little if any advance upon the *Pandects* of Matthaeus Sylvaticus. Long known as *Herbarius*, in its various editions it forms the series treated separately by Pritzel, p. 349, under that name Herbarius, *—a name also used for the *Ortus Sanitatis*, for the

* *The name Herbarius*, so often used for the Aggregator Practicus, is a source of confusion because too general. Other works or authors liable to confusion with it include the following:

1. *Herbarius*, in Latin, often cited as "Herbarius" by Vincent de Beauvais, but not now known to be extant; Sprengel thought it a compilation by some monk of the twelfth century from Arabic writers and from Pliny; I have entered it in the tabular view, p. 97, as probably a Salernitan herbal.

2. *Aggregator Paduanus*, in Latin, written 1355 (Schrank) by Jacobus de Dondis (Giacomo de Dondi, 1298–1359; maker 1344 of the horologe of Padua; friend of Petrarch); completed 1385 by a Jacobus Paduanus (*preface*). To be distinguished from the other great medical encyclopaedia of similar name, the *Conciliator Paduanus*, (printed 1472, etc.), the work of Petrus Paduanus (also called *Petrus de Apone* or *de Abano*, 1253–1316, called by Meyer, 4: 109, the most renowned alchemist of his age; the *Glosses* of *Petrus Paduanensis* were published in 1887 in the Anecdota Oxoniensis as a reprint from the Venice 1589 edition with Mesue.)

3. *Promptuarium Medici*, a Latin work based on the preceding, but not the same with the Aggregator practicus; it cites 44 authors; was printed, Venice, 1481 and 1576; and in a Low Dutch translation, place not known, 1483.

4. *Ortus Sanitatis*, the Latin original of the next, both sometimes called *Herbarius*.

Gart and *Gartlein*, its German translations, and for various similar works. Among the important differences, we may note the following: The plant chapters of the Ortus number about 435, these 210; there is more descriptive matter in the Ortus, though that is little; the figures of the Ortus are ruder but are many of them drawn from nature; these are more skilfully, but more rigidly, treated and are more uniform, more diagrammatic and conventional; Ortus has a chapter on Aster; this has none; Ortus has an Eryngium drawn to represent an Aster, and Eryngium itself, its

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5. *Gart der Gesundheit*, a German rendering of the plant chapters of the *Ortus*, (by Dr. Johann von Cuba), Mentz, 1485, etc., commonly called *Herbarius* in its introductory pages: the *Der Grosser Herbarius* of modern German citation.

6. *The Pavian Erbario*, an unpublished codex of Pavia, written perhaps not later than 1390. See p. 228.

7. *Erbario di Padova*, an unpublished MS. of Padua, apparently derived from the preceding, written before 1421. See p. 228.

8. *Hieronymus Herbarius*, a citation form commonly used by Brunfels, 1531, for Hieronymus Brunsvicensis, the Salernitan surgeon of Strasburg, author of the *Liber de arte distillandi*, etc., Strasburg, 1500, and later; and author, *fide* Brunfels, of the *Apodixis Germanica*. See p. 332.

9. *Hieronymus Herbarius*, a citation-name by Brunfels for Bock (*i. e.*, Tragus) and his writings, *fide* Meyer.

Earlier authors or works of similar title include:

10. The work of *Andreas Herbarius*, perhaps 230 B. C., in Greek, known only by quotations. P. 120.

11. The *Rhizotomica* of *Cratevas Herbarius*, in Greek, c. 100 B. C., now known to us only by extracts and by probable survival of traces of its figures in those of MSS. of Dioscorides. See p. 120 and p. 150.

12. The similar works of the Rhizotomists *Metrodorus* and *Dionysius*. See p. 124.

14. The *Herbarium Dioscoridis*, a Latin translation of Dioscorides not now extant, mentioned by Cassiodorus, before 562 A. D., as the "Herbarium Dioscoridis, qui herbas agrorum mirabili proprietate disseruit (*i. e.*, descripit) atque depinxit," see p. 152.

15. The Latin Dioscorides used by Simon Januensis; see p. 232, under *Gariopontus*.

16. The *De herbarium Virtutibus* by *Apuleius Herbarius* or *Platonicus*, in Latin, about 400 A. D. See p. 171.

17. The *De herbarum virtutibus* by Macer; often called *Macer's Herbal*; see p. 196. Some have hastily claimed Macer's work, after allowing for rearrangement and rendering Latin verse by German prose, to be the same with their *Herbarius* or *Gart der Gesundheit*. Menge (author of a *Flora Gedanensis*, 1839) wrote such an opinion in the copy I now possess of the *Gart*. But there were in actual fact many distinct stages of development between the two.

Very many other Herbals, as the Italian *Erbario* of Durante, 1585, etc., I omit here because their names are sufficiently distinctive to prevent any blending with the Herbarius of Mentz.

Yringus, is represented by a thistle * (probably Scolymus); the Aggregator presents still a different plant, a combination instead of any single plant, as its Eryngium-Aster figure.

The figures in the Latin Aggregator Practicus as published in Italy are often highly expressive of the characteristic habit while not correct in any exact detail. Many of them had many copyings between them and the plant in nature. The tendency of the more schematic figures to exact balancing suggests an origin for many in the exactly symmetrical figures of the Pavian *Erbario* (see Salernitan writers, p. 228); and singularly enough, the first printed edition in Italy (Vicenza, 1591) was the work of a printer who in that year called in a Pavian printer as his partner, and who may have been the link between the Aggregator figures and their evidently Salernitan origin.

Who was the author of the Aggregator remains a mystery; only one thing is evident, that he worked on Salernitan models. Once-current beliefs that he was Arnold de Villanova or Hieronymus Brunsvicensis may be said to be proved untrue, and the suggestion that he was Giacomo de Dondi, is proved improbable.†

* One of the 17 Dioscoridean synonyms for Eryngium (3, 24) was *Capitulum Cardui*, in Italy. He ascribed its name *centum capita* to Spain; Pliny uses that as its Roman name.

† That the unknown author of the Aggregator was a German was claimed by Choulant and in 1857 maintained by Meyer (3 : 183); that he was a Salernitan in Italy was held by Meyer (3 : 182) in 1855, but in 1857 he concluded that he was probably a German writing under Salernitan influence. But Meyer's reasons (3 : 183) for adopting the theory of German authorship seem highly inconclusive. His strongest argument is the fact that its first printing in Italy was so much later than its first printing in Germany. But printing came to Italy later than to Germany; the first Italian printed book, the Lactantius of 1465, was six years later than the famed Gutenberg Bible of 1459, and a quarter century later than Gutenberg's completion of his discovery when returning to Mentz in 1440. If then the first edition of the *Aggregator* in Italy, in 1491, was seven years later than the first dated edition in Germany, 1484, it but followed the natural order. As it was, the Vicenza *Aggregator* of 1491 had been preceded by very few printed books devoted to plants; chiefly by its own editions in other languages, and by the *Gart der Gesundheit*.

That the author was the Salernitan Hieronymus Brunsvicensis, of 1500 A. D., was the theory of Trew and Sprengel, but as this Hieronymus was an older associate of Brunfels he was quite too young to have written the Aggregator, though he might have been its translator into German.

That the author was Giacomo de Dondi, of Padua, of about 1340, was suggested in 1552 by Gesner, has been widely believed and was accepted by Pritzel (p. 349). But the synopsis of Dondi's writings in 1560 by Bernardinus Scardeonius, canon of Padua, gives no confirmation to the suggestion.

Date.—The *Aggregator* cites only 15 authors, as its *Avicenna*, *Mesue*, *Averroes*; and its "Diascorides," known to its author chiefly if not wholly through Serapion. The latest authors cited are its "*Bartholomaeus Anglicus*," circa 1256, its "*Pandecta*," by 1317, and its "*Albertus de virtutibus*," the Pseudo-Albertus or Albertus de Saxonia, who may have written about 1300. The *Aggregator* may therefore have existed, concludes Meyer, as a Latin MS., from about 1350. It may have been first printed*

That the author was Arnald de Villanova, of about 1280, was a still earlier belief hard to eradicate, and yet current after 400 years, a copy of the 1499 edition having been exhibited in N. Y. in 1901 as of *Arnoldi de Novavilla*, and another in 1902.

The ascription to Arnald arose from the ornamented first page of the Vicenza edition of 1491, which was embellished with two figures of philosophers discussing herbs, under which their names were printed as *Arnoldi de Nova Villa* and *Avicenna*. The 1499 edition omitted the figures but repeated the names; thus beginning by seeming to declare itself (and so Hain [no. 1807] recorded it) as "the Avicenna of Arnoldus de Nova Villa." Gesner in 1552 observed that it certainly was not by Arnald, and Meyer in 1857 called attention to the fact that its author expressly mentions Arnald and Avicenna in his preface as men of a past era.

Name.—The specific name *Aggregator practicus* is given to the work by its author in his own preface, remarking "The diseased human body requires the act curative, that of medical practice. From this the present *opusculum* takes its name, *Aggregator practicum de simplicibus*."

* As this work may prove to be the first printed treatise on plants, I take the space to present its entire bibliography so far as accessible.

Latin editions. 1473; "editio antiquissima of circa 1473, in the Hulthemian library at Brussels," *Pritzel*, no. 11867, n.; who writes from recollection only.

1473? a copy cited by Pritzel, 11867, as in the Royal Library at Berlin, and inscribed "*Herbarius in latino cum figuris*," perhaps same as preceding; unless that prove not to be Latin.

+ 1473, another copy in the Royal Library, at Berlin, bearing as title the word *Herbarius* alone, accompanied by an heraldic lion; possibly not a Latin edition.

1485? Louvain, Belgium, a quarto edition of "the Herbarius or Aggregator"; this and the next and three other works were printed at Louvain by Jan Veldener; these undated but the others 1484–1485; see p. 309. Three copies in British Museum, one imperfect (Proctor, 9298).

1485? Louvain, by Jan Veldener, "Herbarius or Aggregator, in latino cum figuris; 4vo." Three copies in the British Museum, 2 imperfect (Proctor, 9299).

1491, October 27, Vicenza, by name of "*Herbolarium*, seu de Virtutibus herbarum"; *Hain*, 8451. Pritzel and Hain had not seen a copy, but Meyer possessed one (*Meyer*, 3: 183). The British Museum has an imperfect copy (*Proctor*, 7131). Printing was begun early in Vicenza, in 1474, the 25th Italian city to establish printing within nine years. It was brought to Vicenza by Leonardus Achates of Basle, who had been printing at Padua and brought his first type from Padua to Vicenza, printing alone 1474–1490, when he brought out a folio *Crescenzi* in Italian. In 1491 he had working with him one *Gulielmus de Pavia* (Proctor), and the two partners printed this *Herbolarium*, and in May, 1491, an edition of Euclid. Perhaps Gulielmus de

about 1473, and may prove to have been the first work printed which concerned itself primarily with plants. From the Latin, early German and Dutch translations appeared in 1484, and Italian in 1538.

Aster blended with Eryngium.—"*Iringus*," subject of chapter 76 of the *Aggregator*, represents the *Eryngium* of Dioscorides and of modern botany, the *Irincii* of Crescenzi. The chapter is taken

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Pavia was the means of introducing figures from the Pavian *Erbario* into the Herbolarium. Achates may indeed have seen, when in Padua, the fewer figures of the Paduan *Erbario*, and now, by means of Gulielmus, was able to get access to their source at Pavia.

1499, Venice, with misleading title "*Arnoldi de nova villa Avicenna*," calls itself in preface, like the others, the "*Aggregator practicus de simplicibus*"; calls itself in the colophon, "Liber vocat[us] Herbolarium de *Virtutibus herbarum*"; was known, to Meyer but not to Pritzel; a copy was exhibited in New York by Chatto, of London, in 1901; from my own copy (apparently first brought to America about 1866), I have made the citations above. Hain knew a copy, his 1807; there are two copies in the British Museum (one slightly differing). My copy states in the colophon, that it was printed at Venice, December 14, 1499, by "Simon Papiensis dictus Bivilaqua." Proctor calls the printer "Simon (de Gabis) Bevilaqua," and lists him as the 12th printer of Vicenza, 1487, when he removed to Venice and became its 121st printer, 1492–1500, issuing some 39 works, chiefly classical poets; the 35th was this Herbolarium, in which he was evidently repeating the traditions of his earlier life at Vicenza, and which was just preceded, 8 October, 1499, by his printing the *Statutae urbis Vicentinae*. He was also printer, 23 October, 1499, of Sacro Bosco's *Sphaera mundi*, and, 1500, of Avicenna's *Canons;* otherwise his works were chiefly classical poets as Ovid, Lucan, Plautus, etc.

1502, a reprint of the preceding, by his friend Christophorus de Pensis, July 4, 1502, Venice, known to Pritzel from Geneva and credited to *Bibl. Webb*. De Pensis seems to have used the same font of type with Simon de Gabis in 1498 and 1499.

1509, Mar. 15, another reprint, by "Jo. Rubeus et Bernardinus, fratres Vercellenses," Venice. A copy belonged to Rivinus; another, the Rice copy, is now in the Library of the N. Y. Botanical Garden.

Dutch translation, the *editio Belgica* of Pritzel, following Hain, 8449, quoted by Hain as "Een Herbarius of Kruydboek, 1484, *typis* Joh. Veldener Culemburgi," (i. e., of Culenberg or Kuilenborg, in Guelderland, near Amsterdam). Hain adds, that "besides its figures of plants it bore two printers' marks (duob. xylographismis) used, it is claimed, by Laurens Coster," of Haarlem, "who brought the first print into the world in the year 1446," says the Coster pedigree. A copy is in the British Museum (Proctor, 9158; Campbell, 918) entitled "Kruidboek in Dietsche," quarto. Jan Veldener began and ended his printing at Louvain, Belgium, 1474–1485; see p. 308; printing also at Utrecht, 1478–1481, and this Kruidboek at Kuilenborg in 1484.

German translation, 1480? "*Herbarius*, with names in Latin and German; with 150 figures; a quarto without date, name of place or printer; but similar to the edition by Schoeffer of 1484, and perhaps older." So *Hain*, quoting *Trew;* Hain's number 8443; not listed by Pritzel; Meyer deemed it "no doubt similar to the Mentz edition, following" (3: 178).

from Serapion with additions from "Pandecta" and Avicenna; the accompanying figure is a singular one and of blended identity, showing a stout plant with pinnatifid leaves, spreading and thorny above, each branch ending in a flat star-like flower, seemingly meant for a small composite disk with five long stiff sharp rays, like Matthioli's Aster-heads drawn in 1560 to represent *Pallenis spinosa*. Perhaps the flower was in part influenced by that latter plant; and in part by an attempt to represent words of the Aggregator's text, as "Yringus est species spinae." That the flower-heads suggested, in these radiately-set spines, the likeness to a star, was observed as far back as Dioscorides,* who observed that the spines are ὥσπερ ἀστήρ, "spines set just like a star." But the

1484, the *Herbarius Moguntiae*, printed by Peter Schoeffer, and bearing his red shields, *Hain*, 8444. Pritzel knew two copies in Germany, at Vienna and in the Senckenburgk library at Frankfort. Proctor (1901) records a copy in the British Museum.

1485, the *Herbarius Pataviae*, a reprint of the preceding with little or no change; at Passau, Bavaria, not Padua, *fide* Hain, 8445. Meyer possessed a copy, but incomplete. Pritzel knew copies at Vienna and Bibl. Candolleana. Proctor records an imperfect copy in the British Museum: comparison of type convinced him that its printer was Johanni Petri, the chief early printer of Passau (preceded only by Benedictus Mayr, in 1482); it was perhaps the first book printed by him; he used for it a large type, very much like one used by Anton Sorg, the 5th printer of Augsburg; and also a smaller type, apparently the same as the first type used by Conrad Zeninger, 8th printer of Nuremberg.

1486, reprint of preceding, also, says Pritzel, with very rude figures; he knew a copy at Vienna and one in Bibl. Senckenb. at Frankfort, *Hain*, 8446; who credits it, like the preceding and the next, with 32 lines to the page.

+ 1486? reprint of the preceding, known only from Hain's imperfect copy (his 8447) of which he says the first four leaves are lacking "in nostro exemplo." Perhaps the same issue as the entry for 1485.

+ 1486? reprint *in typis Reyserianis*, 31–33 lines, but same pages as the preceding; the first five leaves lacking "in nostro exemplo"; *Hain*, 8448.

All of the preceding, 1473 to 1509, are, so far as known, one identical work, unchanged by editing or rearrangement, having the same 150 figures, *Absinthium* to *Usnea*, and are similar small quartos, printed with about 32 lines to the page, and having about 174 leaves.

Italian translation the *Herbolario volgare*, 1536, octavo, at Venice, *Meyer*, 3:183; unknown to Pritzel, who knew its reprints 1539 (in Bibl. Delessert), 1540 (in Bibl. Paris), printed at Venice by Palamides in octavo, repeating the 150 woodcuts, ending *Usnea*, but placing *Aaron overo Serpentaria* (Arum) at the head; after the manner of *Ortus*.

*There was no confusion of Eryngium with Aster on the part of Dioscorides, and only two features of strong resemblance in use, those of Eryngium "for venomous bites" and "for epilepsy."

maker of the present figure is far from the thought of spines, and thinks rather of stiff rays. In these aster-like flower-heads we see the blending of Eryngium with Aster which was made by Matteo Silvatico, but we see no proper expression of the globular stellate-spined bur of the plant Eryngium.

The text of the Aggregator's *Iringus*, 32 lines, seems to blend Aster flowers with Eryngium in its remark that a kind of Iringus "bears a flower whose color is as the color of violets, except that they are larger than the violets, and when they fall they have a seed in great quantity like a chicory * seed"; but other quotations from Serapion are mingled with this which have no relation to Aster

A more extended description transferred from Aster occurs where the Aggregator writes of his *Iringus* that "Pandecta in the same chapter on *Yringus* or *Secacul*, recommends the leaves of *Iringus* and *Plantago* boiled in water and vinegar, '*inflationi stomachi, et apostematibus oculi et aliis apostematibus calidis*': and some say that the flower of this herb, which is of a purple color, if you drink its decoction in water, cures *squinantia* and *cpilentia quae accidit infantibus*." Working from the Pandect's mixed description of Eryngium, "Secacul," and Aster, the Aggregator perpetuated this blending in its text, while the Ortus of not far from the same time still entangled the two somewhat in its text (retaining the potency of its "Yringus" for "squinantia") and also confused them still more in its figures. It remained for Fuchs, in 1531, to clear the subject finally, and show that Aster had been intended. See *supra*, p. 304.

Viola forms another of the Aggregator's uniform chapters, this time of 34 not 32 lines. The figure, though readily recognized for the violet, is unusually conventionalized, uniform hearts replacing the leaves, and uniform narrow pendant bells, the flowers, while, heedless of nature, the artist has sought to complete the symmetry of his perfectly balanced figure by forking the central flower stalk and dropping a flower from either side of it.

The author credits his chapter on the Violet to "Avicenna, Platearius, Pandecta." Aster-uses of his violet are those for

* Chicory, if the printed *ciceris* was an error in writing for *cicoree*, the Aggregator's spelling for *cichoreae*, which was a plant highly esteemed by him and forming a previous chapter, while *cicer* does not receive any separate description.

apostemata * and for *inflatio stomachi*, and these uses may have been of independent growth. This lack of the customary mention of "violets potent for children's epilepsy" seems to have caused some one of the plant-writers of the period to feel that something more should be said; so that in one copy of the 1499 edition of the *Aggregator*, we find added to *Viola* in apparently a 16th century hand, the note "Viola purpurea dicitur viola ad caduchos," (*sic*), *i. e.*, "*Viola purpurea* is called *the violet for the falling sickness*," the epileptic's violet.

LVI. CONRAD VON MEGENBERG

Bavarian ecclesiastic and writer, Conrad von Megenberg was author, in his *Buch der Natur*, of the first general natural history in German, written by him probably at Vienna, in 1349 and 1350, as an amplified translation of *De Cantiprato's Natura rerum*.

The *Buch der Natur* was first printed† in 1475, and five times again by 1499, but became rare and finally obscure, though re-

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Among other plants which have reference to Aster history, the Aggregator says of "*Camomilla*, 'sedat dolorem apostematum,'" c. 37; like the Aster of Greece and Rome. Otherwise this Camomilla is distinct, and its figure is very expressive of the plant.

"*Enula* is of two kinds, *ortulana et campestris*," c. 54; "nothing is to be said here of the former." Like its relative Aster, it is powerful "contra dolorem stomachi et intestinorum." The famous line from the Regimen

Enula campana reddit precordia sana

is quoted; see *supra*, p. 287.

Garioffilata (c. 67), *i. e.*, *Geum*, is recommended, like the Aster of Greece, for the stomach.

"*Serpentaria* or *dragunteu major*" (c. 127), the *Aaron* of the Italian version, *Arum* of modern botany; to this plant has passed the former Aster property of making serpents to flee, the Aggregator saying of this, "it makes the venom of serpents to flee away."

"*Solatrum*" stands here in 4 species for Solanum nigrum and the four species of "Strychnos" of Dioscorides.

"*Mellissa*" here replaces Borachum and Melissophyllon for balm, and with little or no importation of Aster characters.

* The classical repute of the violet for sores and tumors, reappearing here for those called *apostemata*, receives a new revival after its long disappearance from the pharmacopeia, in the claims put forth for it in England in 1901 as a cancer-cure.

† *Editio princeps*, 1475, printed by Hans Bamler at Augsburg (and again in 1478, 1481); Pfeiffer possessed a copy; Pritzel numbers it 11764 among his "Opera anonyma." This first edition, a folio of 292 leaves, begins with "Hye nach volget das puch der natur,...Welches puch meyster Cunrat von Megenberg von latein in teutsch transferiert und geschreiben hat."

membered as an epochmaking work by Lacroix, who in his History of Science in the Middle Ages alludes to it as a sudden emergence of light in darkness, and as the work "of an unknown German of the Rhine provinces." Meyer, in 1857, had learned its author's

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Early editions followed, 1482, 1499, by Hans Schönsperger, and 1482, by Anton Sorg, all, like those of Bamler, Augsburg folios, with woodcuts. An early quarto, without date or place, is in the Altdorf library (Pfeiffer); unknown to Panzer and Hain.

Egenolf, at Frankfort, reprinted parts of the *Buch der Natur* with modifications, 1536 and again 1540, a folio of 66 pages, with woodcuts and the title, "*Naturbuch* ...durch Conradum Megenberger."

The next was Pfeiffer's reprint (from which I quote), Stuttgart, 1861, an octavo of over 870 pages, without figures, identification of species, or annotations, but with excellent biographical and critical introduction, many textual comparisons, and an extensive Worterbuch (255 pages) to adapt the work for use in the study of its early Bavarian dialect and the development of German. This reprint was entitled "*Das Buch der Natur*, von Konrad Von Megenberg, die erste Naturgeschichte in Deutscher sprache, Herausgegeben von Dr. Franz Pfeiffer."

The MSS. of the *Buch der Natur* are numerous; seventeen are known in Munich, eight in Vienna, three in Stuttgart, mostly of the fifteenth century; one dated MS. is of 1377, and seven others bear dates from 1406 to 1476."

* Conrad von Megenberg was born 1309, studied at Erfurt in youth, recalling in after years the abundance of certain plants there (Scandix and "Eleborus"); for eight years was at the University of Paris, studied philosophy and theology, becoming a "doctoratus" or a "maister"; came back in 1337 to Germany, spending the rest of his life at Vienna and Regensburg; in 1358, "having been fifteen or more years at Vienna," a paralysis, as he says, "came over me, possessing my feet and hands;...but I was made whole while prostrate before the altar of St. Echard in Ratisbon, while the alleluia 'O gemma pastoralis lucida' was sung, and as they followed with 'Salve splendor firmamenti.'" He became canon of Regensburg, and was set over the church of St. Udalric. He died April 14, 1374, aged 65, his death being recorded asof "maister Chuonrad von Megenburg seligem."

His name appears in the MSS also as Chunrat de Megenberc, Maide-, Maiden-, Maigen-, Magde-, -berg or -burg, also as Frauenberg; he himself sometimes wrote it "Conradus de Magenburg, *i. e.*, de Monte puellarum," merely a fanciful rendering. Pfeiffer suggests (xix) that he was son of one Vogt zu Meigenberg or Meygenberg, *i. e.*, of Mainberg, a mountain town east of Schweinfurt, near the R. Main.

His other works include the following:

1337, a poem "*Planctus Ecclesiae in Germania*," beginning with an address to the pope, in the words:

Flos et apex mundi, qui totius esse rotundi,...
Tu sidus clarum, thesaurus deliciarum, etc.

1340? the "*Deutsche Sphaera*," a brief translation from the Latin "*Sphaera materialis*" of Joh. Sacro Bosco; the first handbook of physics and astronomy in German; two MSS. of it are in Munich, one in Grätz; it was printed 1516 at Nürnberg.

1348, "*Speculum felicitatis humanae*," two books addressed to Rudolf of Austria; of passions, friendship, and moral and intellectual virtues.

name and had briefly collated its plant chapters with their source in De Cantiprato, a source revealed shortly before by Echard; but it remained for Dr. Franz Pfeiffer, in 1861, to make the history of its author clear, in the introduction to his reprint of the *Buch der Natur* of that year.

Conrad von Megenberg * wrote in a Bavarian dialect, with Austrian forms; Pfeiffer's edition giving in 1861 the first opportunity for critical study of the Bavarian dialect of the 14th century. The nineteen books of De Cantiprato are in Conrad rearranged in 8; the book on herbs becomes book V, and the two books on trees are united as book IV. Conrad also made many additions, having 173 plant-chapters against De Cantiprato's 114; of these 84 are of trees, and 89 of herbs, from Absinthium to Zuccara and Zizania, occupying pages 380–430 of Pfeiffer's edition. Like its source, it is more a work on animals than on plants.

Some of Conrad's additions to his author are introduced by the phrase *Ich Megenberger waiz wol*, "I, Megenberger, know well" as of barley, *daz rokkenkorn;* of arum, his *basilig;* etc.

Traces of his early home at Erfurt survive in his mention of Scandix and "Eleborus" as common there: and of his life at Paris in his mention of "Portulaca" and "Orpinum" as found there; together with his reference to the comet * he saw there, in 1337 (bk. 2, c. 11) and to the arum † which grew in his professor's garden. He also refers to a death from Boletus poisoning while he lived at Vienna.‡

1352, or later, his "*Oeconomica*," concerning the regimen of the Court, etc.

1354, his "*Tractatus* pro Romana ecclesia et pontifice Joanne XXII. contra Wilhelmum Occam."

——, a "Chronicon magnum," a MS. which seems lost.

1359? his life of St. Echard, written in gratitude after healing at his shrine.

* "Also, as one reckons from God's birth, in the year 1337, saw I a comet in Paris, which fell like a star over German lands;...and then shortly after, I came here into German land, and there had been many houses wrecked [by it] through Hungary, and Austria, *Paiern* and along the Main and *Rein*."

† Of which he says "Basilicon is called Basilig, also Traguntea, or Serpentaria or Colubrina, and is twofold....It is hot and dry and has the power, some also say, that it drives away serpents from the man who carries it with him; and, says Alexander, this plant grows best in the places to which frogs and snakes are native. That know I Megenberger not, but I know this well, that the Master cultivated it in his Gärtleinn before his sleep-chamber in Paris."

‡ Chapter 38, "*Fungi* are called *Swammen*....Take with wine; there is also one kind, which is called in Latin *Boletos* and in German *Pfifferling;* they are poisonous and deadly, that I know well, for it happened at Wienn in Oesterreich, that one ate and drank of *pfifferling* and died...."

To judge from his citations almost the whole of his book V, on plants, came direct (to De Cantiprato) from Platearius; the authors cited being as follows: Platearius, 24 times; Alexander *der arzt* 5, Avicenna 5, Galienus 4, Diascorides, Democritus, Isidorus, Constantinus, Michael * Scotus, each once.

Only one of the subjects of his plant chapters seems of doubtful identity, his "*Alterana or Verbkraut*, very good to heal wounds."

Of aster-uses which might have been looked for, his chapters on *viola*, † *celidonia*, ‡ *camomilla*, § seem wholly free. He has no chapter on Eryngium, and so escapes any confusion with Aster there.

The potency once ascribed to Aster for epilepsy is by Conrad ascribed to his *peonia*, *salvia* and *eleborus*. As a poison-antidote he recommends *cicorea*; || as sleep-bringers, *papaver*, *nenufar*, ¶ and *alraunöl*, an oil made from Mandragora. The fame of Aster for tumor or *apostema* has with him passed to his camomilla and papaver, ** especially the latter.

Oculus porci. Most remarkable of von Megenberg's plant chapters, so far as relates to Aster history, is that which he styles *Oculus porci*, equivalent of *Hyophthalmon*, Dioscoridean name

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* "*Michahel der Schott spricht* that the Cucurbita spreads its bloom in the night and as the day comes it closes."

† "*Viol*," no. 85, "ist er pesser vrisch und grüen;" as Bartholomaeus reiterated. Conrad's chapter is mainly concerned with "violöl" and "violsyropel" and "viol in wazzer."

‡ "*Celidonia*" or "Schelkraut," no. 19; he now has it that the part of this plant which the swallow brings to give sight to her young, is the blossom.

§ *Camomilla* or Gamillen, no. 16, "of three kinds," one with white "*pluomen*," one yellow, one purple. It heals what is called an "*apostem*." "Our women make *Gamillen-wazzer* from it."

|| "*Cicorea*," no. 28, "has the names *Sunnenwerbel* and *Ringelkraut*; and in Latin, *Solsequium* or *Sponsa-solis*, which is to say, *Sunnenpraut*; and the plant's blossom is called *Dionysia*,—which expands itself and goes after the sun;...It is cold, as Platearius says. It is good against poisons and for the liver."

¶ "*Nenufar* is Sêwurz or Sêkraut; has broad leaves which swim on the lakes or on standing water; and has its bloom called Nenufar, yellow and white; the root comes from the land of India [the phrase he also uses for *Camphora* and *Nardus*]: it is of two kinds, white and black, and that with the black root is stouter than the other. This root is good for many things. It brings sleep and takes away the headache."

** "*Papaver*," No. 61, "is called *Mâgenkraut*; is of two kinds, white and black; its seed brings sleep; use plaster of *Mâgensâmen* to bring sleep till morn; it helps the *apostem*; and when one adds *rôsenöl* to the *Mâgensâmen*, *daz ist pezzer* for the said *apostem*. From it is made the electuary *diopapaveron*."

for Aster. He adds as Bavarian common name for this *Oculus porci*, the name Himmelschlussel, "Heaven's-key," a name of *Aster Amellus* among Bavarian maidens of to-day. In addition to these two coincidences, when we identify his *Oculus porci* we find it to be *Tragopogon porrifolius* L., which plant some citations would imply was actually mistaken, perhaps about 1525, by Anguillara, for the true Aster of the Greeks. Strange that all these coincidences should arise independently; and yet they have no doubt done so; but they lend to his chapter on *Oculus porci* a peculiar interest. This interest is enhanced still further by its moralizing digression which illustrates the character of the man; we hear in it not, as in any contemporary Herbarius, the *Doctor physica*, enumerating nothing but the uses of the plant current among approved Salernitan masters; but instead we hear the Canon addressing his audience and in his enthusiasm for his pretty flower and its moral, forgetting to say one word about any disease it is good for. So I translate the whole as literally as may be, its obscure early Bavarian often proving unintelligible to the Bavarian of to-day.

"Book V, c. 58, Von der Veltpluomen.

"*Oculus porci*† is a Veltpluom * and is also in Latin *Flos-campi*,* and is also in common speech Himelslüssel.‡ The bloom grows readily on the high ground along the roads, and has a pleasant tasting root,§ so that people || dig it up and that swine feed on it.

"The bloom has a high stem that holds up the bloom toward heaven; and it is very bright and beautiful, and if one should dry it, it nevertheless keeps the color just the same. The plant has little leaves which are very narrow.

* Veltpluom, literally Field-bloom, i. e., *Flos-campi;* Bartholomaeus Anglicus also refers to *Flos-campi* similarly as specific name, and as if suggested to his mind by its use in this chapter of De Cantiprato,—which probably ended with the statement of temperament.

† See *supra*, pp. 107 and 108 for similar occurrences. Another swine-name in Conrad is in his chapter 23, "*Cyclamen* is called *Sweinkraut* and has also the name *Panis Porcinus*, that is to say, *Sweinprôt*," Eng. *Sowbread.*

‡ Not the same plant as the modern Himmelschlüssel, of Passau, the Aster (or, sometimes, *Gentiana verna*) nor as an ancient Himmelschlüssel of the *Apodixis*, which is the cowslip; see pp. 73 and 333.

§ "*Lustig Wurzel.*"

|| *Tragopogon porrifolius* L. is now eaten in Bavaria under "the name of *Schwartzwurzel*, and sometimes I used to see its flower there, yellow and red," *Bavaria.*

"The bloom is hot and dry in amazing degree. The blooms and the lilies are likened to Our Lady in Scripture, and it says 'Ego flos campi,' etc.; that is to say, 'I am a Veltpluom, and a lily of the valley.' Yea, now take notice! it is a light-bestowing Veltpluom, when it stands in the pathway of Grace; when the sinner comes that way, then the bloom shines out with full mercy, and is a lily of the valley where the two mountains rise one over against another; justice and mercy; otherwise the sinner were lost."

LVII. ORTUS SANITATIS

Perhaps the earliest post-classical work to present a chapter on Aster without admixture with other plants, was the *Ortus* Sanitatis*, that great storehouse of mediaeval lore, including minerals and animals as well as plants, which appeared in many editions for forty years or more before 1517, but whose author and original date † remain still unknown and almost without a guess. Meyer claims that it existed some time as a Latin manuscript, perhaps fifty years or more before the printing of the undated first edition.‡

* *Ortus Sanitatis* was continuously the form of its name when first printed; not *Hortus Sanitatis* as now often corrected, with a desire to make it conform to Augustan Latin.

† Provisionally, the date may be conjectured as about 1400, which is midway between the last author cited, Pandectarius, 1313–7, and its first printing, 1475 or earlier. If written in Italy, the fact of only one edition appearing in print in Italy against so many in Germany, may be due to the greater avidity for herbals in Germany.

‡ The following outline of the editions of Ortus Sanitatis is based on Pritzel's *Thesaurus* and Hain's *Repertorium*.

ORTUS SANITATIS, including *De herbis*, to fol. 202; *Tractatus de Animalibus*, to fol. 297; *Tract. de lapidibus*, to fol. 332; *Tractatus de Urinis*, to fol. 342. In all 360 leaves, folio, 2 columns, 54 and 55 lines to the page, without place, date or printer's name, with woodcuts. *Hain* 8941, *Pritzel* 11876. Two reissues with but slight change, are *Hain's*, 8942, 8943.

1491. ORTUS SANITATIS, includes the preceding and an "*Eneca* in naturalibus questionibus" or "*Liber septimus*"; folio, 453 leaves, 47 lines to the page, 2 cols., with woodcuts; printed by Jac. Meydenbach at Mentz, under authority of Bertold, Archb. of Mentz, 23 June, 1491. *Hain* 8344, *Pritzel* "11879;...copies seen in Bibl. Dresd., Goett., Francof., Webb." Hoefer in 1856 mistook this for a Latin translation of the *Gart der Gesundheit;* Meyer established the priority of the Latin Ortus in 1857.

1498. A Strasburg reprint of the last, claimed to be of about 1498; I quote the chapter on Aster from a copy in the Congressional Library, Washington, D. C.

1511. Venice, "per Benalium," an edition used by Meyer, not known to Pritzel. A copy (from the Rice library) has recently been added, June, 1902, to the Libr. of the N. Y. Botanical Garden.

It contains, in the Venice edition of 1511, 1066 chapters, 144 on minerals, 392 on animals, and 530 on plants.

Ortus on *Aster*. Under the title not of *Aster* but of *Ynguinalis* (*i. e.*, *inguinalis*, Pliny's name for Aster), Ortus devotes its chapter 520 to an account of Aster Atticus, consisting mainly of quotations from Paulus Aegineta and Galen.

"Ynguinalis vel stellaria latine, grece asterion vel aster acticus vel bubonium. Plin. ca. Asterion,§ nasc[itu]r infra petras et loca aspera. Hac herba nocte tanq[uam] stella in celo lucet adeo ut eam videntes ignorantes putent se fantasma videret, pastoribus maxime videtur.

"Paulus cap. Aster vel asterion. est quidam herba radiata ut stella, foliis oblongis duabus aut tribus, in acumine capitella stella modo radiata.

"Operationes. Galie. vi. sim. far. ca. aster acticus sive ynguirialis.* Alii vero bubonium vocant, qō non solum supplasmatum sed etiam ppinatū ‡creditur bubones sanare. Habet aut qō dyaforeticum. Habet etiam nominō refrigerativō qd reperissi, ut mixte sit potentie sicut rosa, non tamen sic stipticat.

1517. A quarto, 355 foll., two columns, 57 lines each; with woodcuts; copies at Vienna and Frankfort. *Pr.* 11880.

Translations of the Ortus include:

Gart der Gesundheit, in Ger., see the next title.

"Gaerde der suntheit...dat boke der Krude," Lubeck, printed by Steffen Arndes. 1492, 562 plant figures, Artemisia–Zuccarum.

"Garde der suntheyt," Lubeck in saligen Steffen Arndes' Druckerye, 1520, folio, text and figures different from *Ortus*.

"*De Grote herbarius*, die Ortus sanitatis ghenaemt" in Dutch, 1514.

"*Ortus sanitatis*, in French, *typis* Verard, 1501 or circa.

"*Le Jardin de Sante*," Paris, 1530.

Copies of the Ortus Sanitatis, once so common in Germany, have become bibliographical rarities, especially in the early editions: one of the first French translation, of about 1501, bringing £69 in Lon., Nov., 1900.

* The author here supposes himself to be quoting from Pliny, from a supposed chapter on Asterion. He was really quoting from Apuleius Platonicus, through Simon Januensis, who used a mutilated copy of Apuleius in preparing his *Clavis sanationis*; a copy of the *Clavis* lay doubtless before the author of the Pandects when writing; and one of the chief sources of the "Ortus" was this volume of the "Pandects."

† *i. e.*, "Quoting next from Galen's 6th book of pharmaceutical simples, chapter on Aster Atticus or Inguinalis."

‡ For *peripinatum*, seemingly intended to represent *περιαπτόμενον*, of Paulus, 7, 3 rather than "suspensum" of Galen.

"Et idem codē li, magis infra, cap. bubonium sive aster acticus sive inguirialis noī attē ex eo opere diē pferre bubonib' tā cataplasmatū qz̄ assumptum.

"Est autem mediocriter dyaforeticū eo çp mediocriter est ca,* et neqz vehementer aeqz intense desiccat, maxi[m]e aūt cū adhuc tener. est et recens dictum est prius.

This seeming jumble of ideas contains no new matter, but is a mixture of wrongly credited quotations. That credited to Pliny is really from Apuleius; that credited to Paulus Aegineta is really from Pliny; that credited to Galen is partly from Paulus Aegineta, the rest from Galen; from his chapter on Aster Atticus and from that on Bubonion.

None of these authors were quoted at first hand, however, for the Ortus Sanitatis† according to Meyer's judgment, was compiled, so far as the botanical part is concerned, entirely from four great Latin encyclopaedias of the Middle Ages, the *Pandects* of the Salernitan Matteo Silvatico; the *Speculum naturale* of Vincent de Beauvais; the *De natura rerum* of Thomas de Cantiprato; and the "*De proprietatibus rerum*" of Bartholomaeus Anglicus. All of these works were written about 1256 or shortly after, except the Pandects, and that was written by 1317. The latter is occasionally named as a source in the Ortus.‡

* ca', *i. e.*, *calidum*.

† On the whole, the Ortus Sanitatis is an outgrowth of the Salernitan school; largely in its text; considerably so in its figures; and even also in its name; in which we see a modification of the Salernitan Regimen Sanitatis. We find the name reappearing in English in Eliot's Castle of Health, and in the slightly later *Haven of Health*, of 1584, a curious treatise by Thomas Cogan, professedly "amplified upon some words of Hippocrates" and "verbatim,...especially out of Scho. Salerni." In this *Haven*, in which plants are described in 125 chapters (pages 22–110 of my copy, Lon., 1612; printed by Bradwood for John Norton, the publisher of Gerarde's Herball), the long-standing Dioscoridean combination of the Aster-use for infantile epilepsy with Viola, is broken up and this Aster-use is assigned to "Heart's-ease or Pansies,"—"thought good for the falling evill in children, if they drink it oftentimes." But the plant which perhaps most fully takes the place here of Aster and of camomile is a new remedy,—the "Carduus benedictus, or Blessed Thistle, so worthily named for the singular virtues that it hath," which "comforteth the stomache, promoteth appetite, and hath a speciall vertue against poyson, and preserveth from the pestilence, and is excellent good against any kinds of fever," so that it is called "*Benedictus Omnimorbia*, that is, a salve for every sore, not known to Physitians of old time, but lately revealed by the speciall providence of Almighty God" (see edn. 1612, pp. 54–55).

‡ Some idea of the proportion drawn from the different authors may be gained from

The lineage of the Aster-chapter may be traced through Matteo Silvatico's *Pandectae* to Serapion in Simon Januensis' version.

There is also a separate chapter on *Yringus, i. e.*, Eringium, c. 429, on "*Yringus* vel centum capita, *latine, grece* byoman, *arabice* astaruticon vel secacul." Here *Yringus* in description and uses is properly based on Eryngium, until the chapter proceeds to cite Serapion. At this point the description of properties, the "operationes," becomes a confused blending of a blue Centum-capita with Aster and with a white Eryngium. Serapion is quoted as saying of his *Astaruticon, id est, Centum capita*, "that one kind is of *coelestis coloris*," another is white; and continues in words derived from Aster, "Its flower is similar to that of the camomile; the little heads resemble stars, but the leaves which are on the branches have their chief development in length instead, and are pilose. Serapion on authority of Dioscorides says it is useful for inflammations of the stomach, for *apostems* on the eyes; and others say the flower of that plant which is of purple color is useful against quinsy, if taken with water, and is potent against epilepsy of infants and against *apostema lumborum*."

Altogether, the long chapter in *Ortus* on *Eryngium* is derived as a whole from Serapion's chapter "*Astaruticon id est Centum-capita*," with a little from Avicenna on *Secacul.* Serapion by identifying Aster Atticus with Centum-capita led to the identification of Aster with Eryngium in the Pandects; and the blended description then passed on into this Eryngium chapter of *Ortus.*

Aster as a name for the Samian or Lemnian earth does not occur in the Ortus, the name being replaced as in *Circa instans* (which is duly quoted) by a chapter, No. 400, on *Terra sigillata* or *Lemnia fragida.*

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comparison of the last 20 chapters of the Ortus, citations occurring as follows (using its German version):

"Die meister" (without indicating who) 11; "Das buch Pandecta," 4 times. "In dem buch *Circa instans*" 2, besides "Platearius," 6.

"Paulus,	5	Plinius,	6	Platearius,	8
"Serapio,	10	Galienus,	7	Diascorides,	7
"Avicenna,	2	Mesue,	1	R. Moyses,	1

The order in which the author esteemed these sources may be inferred from his reference c. 422 to "those very learned masters, Avicenna, Galienus, Serapio, Diascoridides." The bulk of matter transcribed in these chapters is very largely from Serapion and Plateario.

Figures. The *Ortus* contains woodcuts of nearly all the plants described, some of which bear evidence, remarks Meyer, of having been "derived from those in the *Circa instans* of Matthaeus Platearius; with others added from sketches made from nature in the Orient." The woodcut for Aster shows no derivation from any Aster at all, but was copied or modified from an Eryngium; its small stiff-borne flowers, and its few deeply-slashed leaves are drawn with long, sharp radiating points; the illustrator may have had in his mind the stellar, but not the Attic, star. See p. 311 for comparison of this Eryngium figure with that in the *Aggregator Practicus.*

The unknown author of the *Ortus Sanitatis* himself traces some of his figures to the Orient, saying in his preface that he was moved to write the book not only of his own purpose but by a certain noble lord who had travelled through "Alemannia," Italy, Slavic lands, Aegypt, and Crete, "who had acquired great knowledge concerning their rare or unknown or medicinal herbs, animals and minerals, and great skill in describing them, and had taken care that their likenesses should be figured in suitable drawings and others in colors." Stricker judged this noble botanical traveller and artist or art-patron to be the Ritter Bernhard von Breydenbach, who was returned in Jan. 1484 to Frankfort from a pilgrimage to the Orient.* Meyer believes that the date of the Ortus is far older and the pilgrim must have been another.†

* Breydenbach's *Peregrinationes* ad Montem Sion which "appeared in Latin at Mentz in 1486, with woodcuts," has become a collector's rarity, a copy selling in London, Nov. 1900, for 60 pounds.

† The botanical traveller claimed by Lacroix for the end of this 15th century are *Jean Léon*, the African; who wrote of the natural history of Egypt, Arabia, Armenia, and Persia, from his travels.

Peter Martyr, "Pietro Martire d'Anghiera, on a diplomatic mission to the east, verified book in hand, the statements of Aristotle, Theophrastus and Dioscorides."

John Manardi, the doctor of Ferrara, "herborized in Poland and Hungary."

Jacques Dubois, surnamed Sylvius, "travelled all through France, Germany and Italy, in order to study nature."

Another botanical traveller of the end of the 15th century was *Henricus Calcoensis*, a Scotish Benedictine prior, author of Synopsis Herbaria, and translator of Palladius about 1493 into Scottish; so says Pulteney, 1 : 24, adding, from Dempster, that Calcoensis "travelled through France, Germany and Italy, solely to enjoy the conversation of the learned."

GESUNDHEIT

title *Herbarius*," or
on † from the Latin
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alled Cube and Caub;
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Magdeburg and of Mentz as earlier, ha
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ss, 1507, 1509.
s, 1515, 1521, 1524, 1528.
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gart, with ... gemehrt...." With th
Mar. 26, 1533; by Eucharius Rh
Reprinted 1540, with 307 + 29 pages

s but remodeled under the names
der those names.
Cuba, M.D., German naturalist, one
with addition of figures to his text."

"Diss krut schynet in der nacht glich den sternen an den hymmel und schynet also hecht das dich der mensch wenet es sy ein gespenst oder bedrügniss des düfels."

As a general thing this German translation is simplified from the Latin Ortus in other ways than merely translation; the abbreviated forms are almost entirely written out, Pli. appearing as Plinius, Galie. as Galienus, etc.

As in *Ortus* a woodcut of Eryngium does duty for Aster, but much enlarged and otherwise different. In my copy this and other figures are rudely colored by hand, apparently by contemporary works; leaves and stem are green, and the bristling flower-heads a blue-green. The figure occurs on the previous page; it is usual in this work that the figure precede the title and the plant-description. The figure used for Eryngium is a thistle, or a *Scolymus*.

The article following *Ynguirialis* (Aster) in the Ortus was on the plant *Ypoquistidos*, *i. e.*, the hairy rose-gall; in the Gart der Gesundheit this disappears and the article following is *Yacea*, the pansy (with figure of the small form, the old time *Ladies' Delight* of the gardens); just as the violet followed the aster in Dioscorides' arrangement; though this is a mere coincidence, as here the order is founded on the alphabet, and in Dioscorides it is irregularly related to use.

LIX. DA MANLIO

One of the least known botanical writers of the fifteenth century was Giacomo da Manlio or Jacobus de Manliis, a Pavian of about 1450.*

Da Manlio's writings include his *Luminare majus*, a work on materia medica, of which editions appeared at Leyden 1536, Venice 1549, 1551, 1561; and his *Explanationes*, preserved to us

* Sprengel, who devotes a page to him, treats him last of the botanical writers of his so-called "*Latinobarbara aetas*," or just preceding Theodorus Gaza, who brought the study of the ancient manuscripts from Constantinople into Italy. Linnaeus in his *Bibliotheca Botanica*, 8 (1747), lists Da Manlio as the sixth among his "*Patres Barbari*," calling the botanical writers of the Middle Ages before 1500 "*Barbari*." Linnaeus cites only one work of Da Manlio, the "*Luminare majus*," on which he amuses himself by adding the ironical inquriy, Quid minus? Sprengel remarks of Da Manlio, "the good man wasted oil and labor while he was endeavoring to harmonize Matthaeus Sylvaticus and Simon Genuensis with the ancients; yet he merited the praise bestowed on him by Euricius Cordus."

only as printed by Brunfels in his *De vera*, 1531, forming its pages 167–182, and bearing the title "*Joannis Jacobi de Manliis Alexandrini*, difficiliorum Herbarum explanatio," etc., and the running title "*Explanationes* Herb. Jacobi de Manliis." It consists of notes on about 140 plants, beginning *De Assaro*, and ending *De Hypericon*, arranged in no definite order, but full of curious mediaeval names and of quotations from Simon Januensis, Pandectarius and Platearius. Da Manlio is particularly concerned with the determination of synonyms, and takes *Circa instans* as a chief authority, though he adds much matter of his own.

Da Manlio was omitted by Meyer, Winckler, Pritzel, and Bumaldus; was an Italian, and lived at Pavia; was not much younger, thinks Sprengel, than Antonius Guainerius, another botanical writer of Pavia of date 1440, whom Da Manlio, 167, calls a "modern." Linnaeus, 1747, calls Da Manlio by the name "De Bosco Alexandrinus"; Seguier, 276, names him "Jacobus Manlius de Bosco, Alexandrinus"; Sprengel, following Brunfels, names him as "Joannes Jacobus de Manliis, Alexandrinus (Italiae)." Sprengel mentions him as first to describe a Scabiosa, to call the daisy Margarita, to make observations on Angelica, Archangelica, Gratiola officinalis, etc.

De Manlio quotes also, besides Antonius Guainerius and those before mentioned, Christophorus de Honestis, Manfredus (see *infra*, p. 380), Serapion, one "Compositor" (author of the *Butanicus ?* cf. p. 228) and earlier writers as Mesue and Avicenna.

Da Manlio's "Compositor" is quoted by him under *Herba S. Mariae*, *Herba Crassula* and *Centumnervia;* under *Spargula*, as saying that it is *Rubea tinctorum minor;* under *Herba Paralysis* as saying it is the *Herba Sancti Petri* (*i. e., Primula veris:* Circa-instans had already said that "*Herba Paralysis or Herba Sancti Petri is Primula veris*"; while also applying *Herba Paralysis* to another plant, perhaps tansy). Under *Cichorea*, "Compositor" is cited as saying that "it is *Rostrum porcinum*, et est herba cuius flos est coelestis."

As to the name *Rostrum porcinum* see *supra*, p. 108. *Circa instans* does not mention it for its] *Cichorea*, though it uses the phrase "of the *coelestis* color." Under *Endivia*, Da Manlio quotes Avicenna as saying it is "*Taraxacon* . . . quam Gentilis dicit esse *Cicerbitam* sive *Rostrum porcinum*"; quotes "Nicholus in proprio

libro" as saying "*Rostrum porcinum* est *Cicerbita*"; and quotes "Joannes Anglicus" as saying "*Altaraxacon* est *Rostrum porcinum* vel *Cichorea*," adding of Joannes, "Idem sentit in capitulis de Fistula."

Da Manlio's Plant Names.—Among names which enter into this present Aster history, Da Manlio uses *herba Morela* for his *Solatrum hortulana; Rubea tinctorum* for madder; *Matersylva* for Caprifolium (*i. e.*, Asperula); *Agrimonia, Ferraria* and *Eupatorium* as synonyms; he says "*Melissa* in modern opinion is Ozymum citratum or Citraria"; "*Aleluia* est Panis cuculi"; "*Crispula* est Oculus bovis seu Buphthalmos, sive Cotula," adding "*Ladion, i. e., Oculus bovis*, seu *Oculus vaccae*, quod idem est, hanc nostri rustici *Cotulam* dicunt." He also states that his *Pulicaria minor* is "Satureia or Timbra," adding the remark that "in partibus Comae unus Graecus dixit mihi quod *Pulicaria minor* apud ipsos vocatur *Coniza* seu *Timbra*, et fecit versiculos sic dicens."

Da Manlio's most direct reference to Aster is in his attempt to classify "Iringus, Centumcapita, Secacul, Affodillus, and Ascaracon," *i. e.*, "*Aster Atticon*," his treatment being as follows:

De Iringio (p. 170), Iringus, aut Iringion aut nux agrestis, ut dicit Diosc. ab aliis Cardopanis dicitur; et est species Centumcapitum, ut apparet apud Serapionem. Etiam ipse Serapion ait "Ascaracon," id est, Centumcapita, est coelestis coloris," inferius dicitur Iringi. Sed Centumcapita alba, est species spinae. Et sic est. Et non est secacul, sicut quidam falso opinantur. Iringus autem est planta spinosa, que in uñs ac pratis nascitur.

De Secacule (p. 167), Secacul * est Sigillum sanctae Marie † et non Iringus, ut quidam herbolarii volunt. Quare Serapion aliud capitulum facit de Secacul, aliud de Iringo....

De Affodillo (p. 170), Secundum Circa instans, Affodillus [Asphodel] est quidam herba, quae vocant Centumcapita. Sed hoc est falsum....

Da Manlio's attitude toward Aster is therefore briefly as follows: he knows Aster only as he reads of it in Serapion under the name Ascaracon; he understands Serapion as identifying this

*Camus identifies the "Seccacul, yringi, calcatrippa, cardanelli idem est" of *Circa instans* as *Centaurea Calcitrapa* L.

†The plant of this name in *Circa instans* is identified by Camus as *Polygonatum officinarum* All.

Ascaracon with a blue Centumcapita; he points out that Iringus (*Eryngium*) and Centumcapita alba (*Eryngium*) are also kinds of Centumcapita, and of *spina*, that is, of spinous plants; and that Secacul and Affodillus were wrongly classed as their synonyms.

RENAISSANCE PLANT-WRITERS

LX. DIOSCORIDES AT THE REVIVAL OF LEARNING

We come now to that body of men who labored for a hundred years over the plants of Dioscorides, and whose struggle to identify those plants was the first great botanical endeavor of the Revival of Learning. Each of these writers had something to say of Aster; sometimes, as mere translators, simply repeating the words of Dioscorides; sometimes, as annotators, discussing his phraseology; sometimes, as workers with nature, comparing his description with plants actually known.

Translations of Dioscorides, usually adding brief annotations, include the following:

Into Latin, 1478, at Colle, by *Petrus Paduanensis*, with "utilissimis annotationibus"; reissued Leyden, 1512; he is perhaps the same, conjectures Pritzel, as Petrus Aponensis. In 1480 or soon after, Hermolaus Barbarus made a second Latin translation; not published perhaps till 1516; see p. 334; but probably written before he went on the embassies of 1486 and 1488. Other Latin versions were those of 1516, Paris, by *Ruellius*: 1518, Florence, by *Marcellus Vergilius*; 1529, Basle, by *Janus Cornarius*; 1549, Paris, by *Jean Goupyl*; 1554, Venice, by *Matthioli*; followed, 1598, Leyden, by the famed version by the Leyden physician *Janus Antonius Saracenus*, deemed by Sprengel the translation *optima*; since whom the chief editors of Dioscorides have been *Salmasius* (Utrecht, 1689) and *Sprengel* (Leipsic, 1829).

Into Italian, first, Venice, 1542, the translation by *Fausto da Longiano*; that by *Matthioli* following in 1544 (Venice), and that of *Andrea Martigniano* in 1545 at Florence.

Into German, Frankfort, 1546, by *John Dantzen von Ast*; again also at Frankfort, by *Peter Uffenbach*, the Frankfort physician, 1610.

Into French, Lyons, 1553, by the physician *Martin Mathée*, with addition of new plants.

Into Spanish, Salamanca, 1563, by *Andreas de Laguna*, known as Lacuna, and as Segobiensis; one of those who interpreted Aster Atticus as properly a blue-rayed* flower rather than yellow; he had issued notes on Dioscorides' plants, in 1552 with figures, and in 1554 with criticisms of Ruellius' translation.

Annotators on Dioscorides.—There follows the long line of annotators on Dioscorides, with whom it was common to have something to say about Aster. I append a selection of such Renaissance

* C. Bauhin, Pinax, 267.

commentators, some of whom were also more general in their scope, and among whom some mention of Aster is to be expected; prefixing to each the date of his first known authorship. For further particulars about these authors, see Bumaldus, Seguier, Sprengel, Meyer and Pritzel; as well as for many contemporary writers whom I omit as less important, less likely to have mentioned Aster, and whose works are not in reach in America.

1480. Hermolaus Barbarus began, probably in this year, at the age of 26, his translation and commentary on Dioscorides; his short life, 1454–1493, was mourned by Leonicenus in a "Lamentatio mortis," 1493: see p. 334.

1481. Antonius Gazius, of Padua; wrote there his *Florida Corona, hoc est de conservatione Sanitatis*, describing 300 plants; printed Venice, by Forlivio, 1481; again, Leyden, 1534.

1490. Guido de Cauliaco, French physician, whose *Antidotarium* appeared at Venice, 1490, again 1519, 1546, etc.

1492. Leonicenus.* Nicolaus, 1428–1524, critic of Pliny, in his *De Plinii...erroribus* (Ferrara, 1492, etc., and again, much enlarged, Basle, 1529). Under the title "*In Plinii Errata*" it was printed by Brunfels, Strasburg, 1531, from an edition prefaced at Ferrara, 1504; forming pages 244–89 of Brunfels' *De vera herbarum cognitione appendix*. In this Leonicenus has much to say "*De Tripolio*," p. 24, and "De Turbit," p. 81, which relates to the literature of *Aster Tripolium* L.———Leonicenus' "*De Plinii*" is also source of many quotations by Brunfels in his own writings, tomes i, ii and iii of his "Herbarum," 1530–7. Marcellus Vergilius praises him as "vir nostra aetate dignus," and refers to Leonicenus' copious writings about Coronopus, which was soon after known as Stellaria and finally confused by some with Aster Atticus; I find nothing on Coronopus, however, in Leonicenus' "*Errata*."

1501. Gerardus Nocito, a Sicilian, known as Pharmacopaeus; his *Lucidarium Medicinae*, Naples, 1511, "librum copiosum, et valde utilem, atque curiosum," giving "a notice of all simples" (Bumaldus, 17).

1510. Collinutius, or Pandolfo Collenuccio; author of "*Pliniana defensio*," a response to Leonicenus' criticisms (Ferrara, 1510; repeated by Brunfels, 1531, in his *De vera*, forming pages 89–116). He treats "*de Tripolio*" (*Aster Tripolium*, etc.) p. 91 of Brunfels' edition.

1516. Ruellius' translation of Dioscorides into Latin; Paris, 1516; see p. 337.

1518. Marcellus Vergilius' translation of Dioscorides into Latin, with copious notes; Florence, 1518; see p. 337.

1518. Joannes Tollatus de Vorchemberg, author, Strasburg, 1518, of "*Margarita* Medicinae,...de remediis herbarum."

1518, Vigonius, Joannes de Vigo, Genuensis, archiater to Pope Julius II; his *Chirurgia Practica* treats in its 7th book "*de natura Simplicium*"; printed Leyden,

* Born of the Leoniceno family of Vicenza, or in their neighboring Castel di Lonigo, Latinized as Leonicum; became one of the greatest masters of elegant Latinity of his age; living to be 96, his long life confuted the conclusions too hastily inferred from the early deaths of Hermolaus, Kyber, Valerius Cordus, Conrad Gesner, etc., that botanical studies were unfavorable in the 16th century to longevity; the fact being that it was the century of the plague, and many young botanists fell victims.

1518; Brunfels in his "Rhapsodies" makes many concise quotations from him; he was also vigorous as well as concise, if we may judge from his remark about Asarum (Br. 1: 74)that its root applied in a lotion "vehementer cerebrum confortat."

1519, Manardus, 1462–1536, critic of Dioscorides, see p. 338.

1525, Luca Ghini began this year his famous lectures at Bologna on the plants of Dioscorides, lectures continuing 28 years and meeting great applause, though as yet unpublished, but lying in MS. at the Univ. of Bologna. Ghini "was the first who erected a separate professorial chair of botanical science; he was the preceptor of Caesalpino and of Anguillara, who became two of the soundest critics in the knowledge of plants that the age produced," *Pulteney*. Wm. Turner was also Ghini's pupil at Bologna. Ghini afterward founded the botanical garden of Pisa; see *infra*, pp. 367, 369.

1527 Euricius Cordus, Simesius, 1486–1538; see p. 355.

1528, Giorgio Valla, of Piacenza; his *De simplicium natura* was printed at Strasburg, Aug., 1528, 8vo, 104 fol. He is one of the authorities Brunfels used, citing him for *Satyrion*, *Chamaedrys*, *Capnon* (Valla's caption for *Fumaria*), etc.

1529, Janus Cornarius' Dioscorides; see p. 339 and (*infra* under *Rivius*).

1529, Count Hermann von Neuenar, author of "Annotations" printed by Brunfels, 1531 (forming pages 116–129 of his *De vera*) and prefaced by a letter by Count von Neuenar from Cologne in 1529 to Schottus, John Scott, the Strasburg printer. These Annotations are concerned with the nomenclature, etc., of 28 plants of Dioscorides: discussing Buphthalmum, Chamomilla, Anthemis, Chrysanthemum, Argemone and Eupatorium, pp. 118–119, among plants sometimes confused with Aster. Count von Neuenar remarks, p. 128, that he uses "opera Symonis Ianvensis, atque Pandectarii, *ubi non hallucinantur*." He was "the last of a noble family; was born probably in 1476; died 1530 at Cologne; was translator of Psalms into Latin hexameter; edited a life of Charlemagne, an edition of Theodorus Priscianus, etc.," Meyer, 4: 242–6.

1530, Baptista Fiera, of Mantua, author of "De virtutibus herbarum," Strasburg, 1530; probably the author whom Brunfels lists among his authorities, 1530, as "Baptista ferrar."

1530? Baptista Pius, another of Brunfels' recent authorities, 1530, perhaps Bumaldus' Jo. Baptista Theodosius, physician, professor of medicine at Bologna, an edition of whose Epistles to Manardus, Victorius, etc., on medicinal herbs was printed at Basle, 1553.

1531, Brunfels, "Father of botany"; *Exegesis*, *Dioscorides*; see p. 340.

1531, Leonhard Fuchs, 1501–1566; "Annotationes" on Dioscorides; in Brunfels' *De Vera*; see p. 348.

1531, Bock or Tragus; "Dissertationes" on Dioscorides; in Brunfel's *De vera*.

1531, John Lonicer; his *Scholia* on Nicander, 1531, on Dioscorides, 1543.

1532, Symphorianus Campegianus, of Leyden; his *Castigationes*, Leyden, 1532, consisted of four books of emendations, chiefly of Arabic physicians; his *Elysium Galliarum* followed, Leyden, 1533.

1533, Joannes Franciscus Rota, "medicus...peritissimus," of Bologna; his *De Graecorum medicaminibus*, Bologna, 1533.

1533, Cornelius Petrus Leydensis; notes on Dioscorides, Amsterdam, 1533.

1534, Benedictus Textor, *Stirpium differentiae ex Dioscorides*, Paris.

1536, Antonius Musa Brasavola; born and died (like Manardus) at Ferrara; 1500–1555; court-physician 1525 to Hercules II, Prince of Ferrara; was in high esteem as physician with the Pope, German emperor, Alfonso I, and Francis I; author of '*Examen* omnium simplicium medicamentorum," Rome, 1536; does not describe

its; unlike its praises of "optime meritus," * Sprengel considers "it but added to hallucinations then current."

1536, Amatus Lusitanus, friend of Musa the preceding; author of notes on Dioscides, Antwerp, 1536, reissued at Antwerp, 1554, etc., with the Grk., It., Sp., Ger. Fr. names for the plants of Dioscorides. See under *Matthioli*.

1539, Agricola Johannes, Ammonius, by birth Paeurle; wrote on the medical his- of plants of the ancients and moderns, his *Medicinae herbariae libri duo*, Basle.

1540, Dorstenius' Botanicon; see p. 353.

1541, Fuscus, or Remaclus Fusch à Lymborch. His "*Plantarum* omnium rum hodie apud pharmacopolas usus est magis frequens *Nomenclaturae*," Paris, 1541, alogues these names in Gr., Lat., Fr., It., Sp. and Ger. It contains (*fide* copy *ex* *l.* Columbia Univ.) no Aster at all, agreeing thus with Fuchs, 1542, and Ryff, 1543, o assert that Aster Atticus was not then in officinal use.

1541, Conrad Gesner, 1516–1565; see p. 358.

1543, Walter Ryff, or Rivius; his Dioscorides, 1543, see p. 389.

1543, John Lonitzer or Lonicer, *in Dioscoridae...scholia nova*, Marburg.

1544, Petrus Andreas Matthiolus, Senensis; or Matthioli; *Discorsi et Commenti* Dioscorides, Venice, see p. 381.

1544, Gisbertus Horstius, of Amsterdam; "libellum *de Tuspeto* et Thapsis radici- s pulcherrimum edidit," Rome, 1544 (*Bumaldus*, 21). For Turbith, see p. 327.

1545, Hieronymus Cardanus, of Milan, and a citizen of Bologna, professor of dicine there, author of "*De simplicium*," etc., Venice, by Hieronymus Scotus, 45; author of "*De Cyna* radice, item de Sarza-parilla," Leyden, 1548, and other rks 1550, 1557, etc. After his death, 1576, his heirs in 1580 published at Rome as by the irony of fate his manuscript work "*De sanitate* tuenda et vita producenda." His "*De Subtilitate*" in 21 books, 1550, devoted the 8th book to plants; a copy is the Latimer Clark collection, N. Y.; it seems not to mention Aster.

1548, Robertus Constantinus; his notes on Dioscorides (Bumaldus, 25), appear in edition of Amatus Lusitanus' notes, Leyden, 1548; his notes on Theophrastus ap- ared in the edition of those of Scaliger, Leyden, 1584, and of Bodaeus à Stapel, 44; he it was who suggested that Theophrastus' Asteriscos was meant for Astericon, Aster; see p. 116.

1549, Jean Goupyl † of Poitou; his edition of Dioscorides, based on the Latin nslation by Ruellius, was printed in Paris, 1549, by Petrus Haultinus. Goupyl prints Latin and the original Greek in parallel columns, as Saracenus and Sprengel after n. He so divides his author as to make 8 books; separates what he judges to be er accretions, as "Notha," pp. 354–382, which are the same as those of Saracenus' sequent arrangement. He follows with his notes, "Castigationes," pp. 383, "offered h much diffidence" after the work done "by Hermolaus Barbarus, Marcellus Ver- ius and Johannes Ruellius"; they were suggestions from variant readings in the ris MSS.; none apply to Aster Atticus. Aster Atticus is described, p. 231, bk. 4, c. ; the color-phrase used is "purple or yellow."

1549, Valerius Cordus, son of Euricius Cordus; see p. 355.

1551, Adam Lonicer or Lonitzer, nephew of John (Joannes Lonicerus), his "Natu- is Historia" was issued at Marburg, 1551; by Egenolph; see p. 391.

1552, H. B. P. *scripsit ocultato nomine in Dioscoridan"; Seguier*, 54.

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* See Bumaldus, 20.

† "Jacobus Goupylus," the printer Haultinus calls him: *fide* copy *ex bibl.* Colu.

1553, Bellonius,—Pierre Belon—the Cenomanian, traveller through the Orient to recover the plants of the ancients; his "*Les Observations*...en Grèce," etc., Paris, 1553; in a Latin translation by Clusius, "*Plurimarum*...*rerum* in Graecia," Antwerp, 1589; 8vo, 468. See p. 368.

1556, Casma; Joannes Casma Holzachius, of Basle; *Annotationes in Dioscoridem*, Leyden, 1556.

1557, Guilandini's *De Stirpium*; see pp. 360, 367, 386.

1559, Bartholomew Maranta; whose *Methodus in simplicium*, Ven. 1559, includes "innumerable notes made from his own observation," *Sprengel.*

1561, Anguillara's Semplici; see p. 365.

1561, Antonius Stupanus, on the *Properties of* Dioscorides' herbs, 1561.

1561, Valerius Cordus, *Annotationes in Dioscoridem*, Strasburg, 1561; see p. 355.

1565, Gesner's edition of Dioscorides' *Euporista*, Strasburg, 1565; finished by Gesner after the death of Moiban his coadjutor,—Jacobus Moibanus Augustanus.

1581. Caspar Wolft's *Alphabetum empiricum sive Dioscoridis*, etc.; see p. 364.

1586, Camerarius' *Epitome*, from Matthioli's Dioscorides; see p. 388.

1591, Aldrovandi, *Comments* on Dioscorides.

1591, Jean Bauhin, whose series of works on the plants of the ancients and finally of the whole world, began with his *De plantis*, Basle, 1591.

1592, Antonio Pasini, *Annotazioni* on Dioscorides, Bergamo, 1592.

1596, Caspar Bauhin, whose works on the plants of the past and of his own time began with his *Phytopinax*, Basle, 1596, and culminated in his *Pinax*, 1623, in which he formulated the results of his labor of 40 years in establishing the complete synonymy of 16th century plant writers, and formed the bridge by which the modern and the ancient botany are joined.

1598, Saracenus' notes on Dioscorides, Leyden.

1608, Nicolao Marogna, *Commentarii* on Dioscorides, with emendations of Matthioli, Basle.

1610, Peter Uffenbach's German translation of Dioscorides, modified from that of von Ast.

1628, Jacques and Paul Contant, father and son, apothecaries of Poitiers; *Notae* on Dioscorides.

1689, Salmasius' notes on Dioscorides, Utrecht.

1829, Sprengel's notes on Dioscorides, Leipsic.

LXI. HIERONYMUS OF BRUNSWICK

In 1500 first appeared the often-reprinted "*Distillerung Buch*" of Hieronymus Brunsvicensis, Hieronymus Brunsthwygk von Salern, as Pritzel calls him, *i. e.*, "Jeronimo the Strasburg physician, of a Brunswick family sprung from Salerno,"—if we combine his titles. Little is known of him; in his preface he calls himself "Hieronymus Brunschwyg, des geschlechts Salern, büntig von Strassburgk." The printer of 1500, Gruëninger of Strasburg, calls him "Jeronimo," and "vvundt Artzot," physician of wounds, or surgeon, and locates him at Strasburg. Sprengel (*Geschichte*, 1: 295–6) calls him therefore "*chirurgus Argentinensis*," and notes

how he exercised himself in the botany of antiquity, and how he showed himself but a "*rudis homo literarum*" in making many a "*ridiculum plane errorem*" about the identification of Arabic and Hebrew names of plants. But these mistakes of that period were the stepping-stones on which rose the knowledge of the next. Meyer ignores him almost entirely. Brunfels calls him "*nobilis*," meaning of a noble family (expatriated from Salerno?) and "*experimentator*," alluding to his efforts to distil medicinal or other waters from a great range of plants; and usually simply *Herbarius*, "the herbalist." Perhaps no other among the many plant-workers of the Renaissance time united so fully the old and the new attitudes toward nature; like the old, he was continually copying the remarks of the ancients on properties: like the new, he was himself wandering in the fields to get a knowledge of plants at first hand. Though using Latin, he was fond of the vernacular, wrote in it and recorded the names that he heard from the lips of the people. Though submitting the properties of plants to the scientific test of the retorts in his laboratory, he was still of the age of Ponce de Leon who believed in a fountain of youth; there were plants which Hieronymus believed could confer the gift of beauty; and he remarks of the fumitory-vine, that "*Fumariae* potio. . .pulchritudinem inducit." *

Hieronymus' Distillerung Buch.—Hieronymus' best-known work, his "*Liber* de arte distillandi,—von der Kunst der distillerung," Strasburg, 1500, is a folio with 212 leaves and over 200 figures of plants, among which one, the widely distributed *Gentiana cruciata* of the European continent, was here figured for the first time, *fide* Sprengel.

The *Distillerung Buch* has, remarks Sprengel (*Geschichte*, 1: 295), almost the same plant descriptions and the same figures as in the *Ortus Sanitatis; i. e.*, nearly the same as far as they go, the woodcuts numbering only 238, *fide* Pritzel.†

* Quoted by Brunfels, 1: 102.

† This "*Distillerung Buch*" as it was often termed, was reissued in innumerable impressions (*Pritzel*) especially 1505, 1512, 1515, 1519, 1521. All were printed by Grüninger before Brunfels wrote; an anonymous English version had also already issued, Southwark, 1525, under the title "The vertuose boke of *Distyliacyon* of the waters of all maner *of herbes*." Important German editions which followed later were those of Egenolph, Frankfort, 1533, bound together with the enlarged *Ortus Sanitatis*

HIERONYMUS' APODIXIS

Hieronymus was also author of an early alphabetical flora of Germany, entitled *Apodixis Germanica, i. e.*, German Guide to Native Plants,* containing brief descriptions in German of 207

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of Eucharius Rhodion; and that of Egenolph's heirs, Frankfort, 1610, reissued, but without its figures, in one volume with the German translation of Dioscorides by Peter Uffenbach.

Brunfels, using the Distillerung-Buch, quotes from "Hieronymus Herbarius" often, throughout his plant-descriptions, or *Rhapsodies*, as he calls them; referring to him as "Hieronymus Braunschwigius, non ineptus Herbarius" (tom. iii, 78) and as "Nobilis Experimentator et Herbarius, Hieronymus" (1 : 55), as "Nobilis Herbarius Hieronymus" (1 : 79, 81), but generally simply as "Hieronymus Herbarius," often with long extracts, as that, 1 : 96–98, on our familiar Cowslip, which Brunfels knew as *Herba paralysis* from supposed curative powers. Brunfels' quotations from Hermolaus and from Hieronymus indicate a long-standing confusion between our Cowslip and the Oxeye or Buphthalmum or perhaps with Aster, many of the properties which Hieronymus enumerates for his *Herba Paralysis* being those once ascribed to Aster, including its use for burning stomach, for headache, for the bite of serpents and all venomous animals, for certain tumors, and for labor-pains. Hieronymus' description of *Aristolochia* suggests also some influx from Aster, the *Aristolochia* like the classic Aster being used especially, he says, for inguinal tumors. ("Usus ejus est in ulceratione colis et pudendarum; et vomicas in muliebribus pudendis sanat," *Hieronymus in Brunfels*, 1 : 55.)

Sprengel deemed the citations of Brunfels from Hieronymus to be taken from the book "Herbarius" of Mentz of 1485, which calls itself the "*Aggregator practicus*" and of which Sprengel (Sprengel, *Geschichte*, 1 : 295; following Gesner and Trew) considered that Hieronymus, of Brunswick, was the author; a supposition for which he seemingly had no evidence and which Meyer in discussing its authorship ignores, but which appears at first not an unlikely guess, since the Aggregator's author seems like Hieronymus of Brunswick to have been an explorer of the classic learning, and to have been strongly tinctured with the influences of Salerno. A fatal objection to their identity is however the fact that Brunfels distinguishes between them; as in his "Rhapsodia XVI." "De Satyrion," the orchid, when, 1 : 110, he quotes first "Ex Aggregator Herbario," and next proceeds to quote separately "Ex Hieronymo Nobili Empirico."

*This "*Apodixis Germanica*" was published by Brunfels in tom. ii of his *Novi Herbarii* at Strasburg, 1531; it formed the last part of that volume; the printer, the famous "Joannes Schottus, Librarius," in his colophon records the date of completing the presswork as Feb. 14, 1532. Brunfels seems to have printed from an old and imperfect manuscript, not from a printed book; at least I find no evidence of previous printing of the Apodixis; unless Bock's quotation of 1531 regarding *Matris-sylva*, may have been made from the *Apodixis* and not from the *Distillirbruch* (see *infra*, p. 343). In fact the Apodixis seems to have been commonly overlooked (due probably to the rarity of Brunfels' work) and it is neglected by Meyer and Pritzel; as well as by Seguier and Bumaldus among earlier bibliographers at hand. If written shortly after the *Distillerung Buch* it may date from perhaps 1505; but it may have been an early work of its author, in rough draft to be afterwards worked in part into his *Distillerung Buch*. Its full printed title reads "*Hieronymi herbarii* Argentorat. Apodixis Germanica, ex qua facile vulgares herbas omne slicebit per discere, coacta in seriem Alphabeticam."

plants. It does not include any Aster by that name, but will be often referred to in these pages, for its descriptions and current names of a number of plants which were in that day often mistaken for Aster and by different writers were identified with the Aster Atticus of Dioscorides: as the plants then known as 'Cliben-kraut or *Rubea*" (madder), p. 187, "Gundelred or *Hedera terrestris*," p. 189, "Mañs-trew or Iringus," p. 193, "Schölwurtz or *Chelidonia*," p. 197, "Synnaw or *Alchimilla*," p. 197; cf. also his "Lienenblum or *Caprifolium*" p. 192, his "Leberkraut or *Hepatica*," p. 192, his "Epphew or *Hedera*," p. 188, his "Nachtschatt or *Solatrum*," p. 194, and especially his "Waldtmeister or *Matrisylva*," p. 198 (*i. e.*, *Aspergula*).*

Hieronymus of Brunswick may have intended *Aster Amellus* L. by his *true Himmelschlüssel;* judging from the application of the latter name to Aster Amellus in southern Bavaria; *vide* p. 73. He distinguishes between three plants for which the name was used; one (undescribed; the Aster?) to which he says it properly belonged; another, *Bellis perennis* L., the daisy, with white rays,—but white color, he says the true Himmelschlüssel does not possess at all; and a third, *Primula veris*, the cowslip, which is, he remarks, "a very different flower altogether; though

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Some misunderstanding seems to have arisen regarding this authorship. Meyer, ignoring the Apodixis and its title, states that Brunfels meant Bock by his term "Hieronymus Herbarius." The fact seems to be that "Hieronymus Herbarius" was sometimes used for either Bock of Zweibrüchen, or for Hieronymus of Brunswick and Strasburg. But when Brunfels wished to be specific he referred to the one author as "Hieronymus Tragus" and the second as "Hieronymus Herbarius Argentoratus" or "Hieronymus Brunsvicensis" or equivalent. He thus specifies the identity of the author of the Apodixis in its very title, as written by "Hieronymus Herbarius Argentoratus," *i. e.*, by the Hieronymus of Strasburg.

That others early understood the author to be the Hieronymus of Strasburg and Brunswick is indicated by my own copy, where on the title page of the Apodixis, opposite to the printed caption "Hieronymi herbarii Argentorat Apodixis," a seemingly contemporary hand has written "*Est idem ille Hieronymus Braunschwyg.*"

Caspar Bauhin in his *Pinax*, on the 4th page of his *Nomina Authorum*, quotes this Apodixis as written by "Hieronymus Brunsuicensis."

From that time till now the Apodixis seems to have fallen into unmerited oblivion.

* Among his other names are "Ye lenger ye lieber or *Amara dulcis* or Arbor dulcis or Hynschkraut or Osterlucey" (*i. e.*, *Dulcamara*) "Wilder Saffron or *Crocus hortulanus*," or "Cartamus," "Widertodt or *Capillus-veneris*," "Wegweiss or Solsequium or *Cicorea* or Sponsa solis or Weglug or Wegwart."

all three are called in Latin *Herba Paralysis.*" * The second and third had been called *Herba Paralysis minor* and *major* by Da Manlio.

LXII. HERMOLAUS BARBARUS

First of Italian botanists to begin a new science of botany from direct study of the classics was Hermolaus Barbarus,† 1454-

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* Literally in the German of the Apodixis, p. 190, "*Hymmelschlüssel, Herba paralisis*, Hymmelschlüssel or Heaven-key [*Aster Amellus* L. ?] in Latin is called *Herba Paralisis*, and in German tongue is Hymmelschlüssel or Paradeis-schlüssel; but by some [it is said that it is the same as] white Barheng [*i. e.*, daisy, *Bellis perennis* L; the *Herba paralysis minor* or *Margarita* of Da Manlio]. And that its leaves [rays] are of a white color; but [this] is false; as I have written before, under the letter B in the [article] Bethonig [*Betonica*, including also, daisy and cowslip]. By some the *Doctores herba, Artotica, Primula veris*, is called [by the same name, *i. e.*, Himmelschlüssel]. That however is false [*i. e.*, a wrong application of this last name]. What *Primula veris* is, is the plant Zeitlössen, and I will speak of it under the letter Z."

Under *Zeitlossen, Primula veris*, p. 199, he says, "*Zeitlossen kraut* is very common, and familiarly known by the Latin [name] *Primula veris* and in German *Zeitlossen kraut* or *Masslieblin.*

Under *Betonien*, p. 185, he had said, "Betonien-kraut in Latin is *Betonica*.... And the Brun Betonien or Betonig is to be separated, that has the brown blossoms,... There is a kind with white [daisy] and another with yellow blossoms [cowslip]....That kind with yellow blossoms is also called by the Latin name *Herba paralisis*, and in German tongue Hymmelschlüssel; and that with the white leaves [rays] is so too. That is however not right; since Hymmelschlüssel is not of that kind."

* Ermolao Barbaro, born at Venice July, 1454, of an ancient noble family; son of Zaccaria and nephew of the Venetian scholar Ermolao Barbaro of 1410–1471, who was himself son of another Zaccaria. Bred to diplomacy, the botanist Ermolao was ambassador (styled "orator") of Venice, as were his father and grandfather before him. He had studied at Verona, and Rome; and Padua, a baccalaureate there, 1477.

Hermolaus' first work, begun when he was 18 and finished when 26, was a Latin translation of Themistius the commentator on Aristotle. His next was a translation of Dioscorides; an elegant edition of which in folio was printed by Egnatius at Venice in 1516; but it was soon replaced by the translations by Marcellus Vergilius and by Ruellius. With it were published his Corollaries on Dioscorides, annotations published first, it has been claimed, at Rome in 1492, but known best from the editions of Venice, 1516, and of Cologne, 1530. A third author considered was Pliny, in whom Hermolaus claimed he had corrected 5,000 errors, made plain in his "*Castigationes Plinicrum*," Rome, 1492, which he had wrought out in 20 months, dating his dedication to Pope Alexander VI in Sept., 1492.

At the end of that year his father died, and he journeyed on a mission to Rome where in a letter he wrote,—almost his last words, "Twelve years have I given myself to statecraft, not from my own impulse, but my father, my friends and my brother impelling me; but knowledge has been all this time, lost. To seek knowledge was I born; to that I have given myself; without that I cannot live. O marvel of fortune, that

1493, eminent in affairs of state, "*patriarcha Aquilegiensis*," a scholar fired with intense ardor for the acquisition of knowledge.

Hermolaus' Aster.—He was first, first of the greater names at least, to identify the Aster Atticus of Dioscorides with *Alchemilla* or Lady's-mantle, an error against which Matthioli was yet doing battle eighty years after Hermolaus' death. Where Hermolaus writes of Aster Atticus, *Corol.* lib. 4, corol. 734, his phrase is "vulgo Stella dictus"; Stella, of which Jean Bauhin's *Historia* * remarks "*Pedem leonis et Alchimilla* † vocamus."

In short, Hermolaus was more of a philologist than a botanist; was interested more in the names of plants than in their descriptions; otherwise the Alchemilla's current name *Stellaria* could not have led him to identify it with the Aster Atticus of Dioscorides in disregard of the purple daisy-like flower heads specified by the Greek description.

Hermolaus' Buphthalmum or Herba paralysis.—Hermolaus Barbarus (cited in Brunfels, 3 : 8) may have had Aster and Leucanthemum, or possibly other daisy-like flowers, in mind in his name Buphthalmum, when discussing the various plants called Herba Paralysis,—"laudatur ad paralysim, a quo et nomen;" including Primula veris, Bellis perennis, a plant called Paradel ‡ and one

committed knowledge to me, me to knowledge!" (Quoted in book 12 and last of the "*Epistles of Politianus* and others," Strasburg, 1513; and, in part, by Meyer, 4 : 221.) But stricken down in a few days with the plague, Hermolaus' death followed near Rome, when only 39, in July, 1493.

* Historia plantarum, 2 : 1044.

† This plant, the Stellaria of Renaissance botany, and sometimes simply called Stella as by Hermolaus here, seems to have derived this name from the radiate-lobed leaves, which were probably a factor in Hermolaus' identification. Brunfels figured it in *tom.* ii, and described it in *tom.* iii, and Matthioli figured it again in his chapter on Aster Atticus. Jean Bauhin enumerates, *Hist.* 2 : 1044, six other plants called Stellaria in his time, about 1600, his Bubonium [Inula], Coronopus, Carduus Theophrasti, Myacantha or Calcitrapa, Perdicium, and a Rubia; concluding safely, *Stellaria, nomen equivocum.* Brunfels when traversing the ground covered by Hermolaus, avoided the identification with Stellaria, figuring that plant by its German name Synnaw, and saying of Aster Atticus that he was not yet ready to identify it. Brunfels, in his earlier and more elaborate treatises on plants—"rhapsodies," as he called them—quoted very extensively from Hermolaus; as in article on Conyza, Brunfels' *Herbarum, tom.* ii, 16–17; Lilium, do. 84; Solanum, do. 30; Nasturtium, do. 73; and in *tom.* i, herba Betonica, pp. 89-90, herba Paralysis (cowslip) 97–8, herba Fumaria, 100; Asarum 72, Dracontium 64–6, Arum 57, etc.

‡ "Flos, qui quonium a longinquo conspicuus est, Paradelos vulgo dicitur; folio etiam non admodum diversa, nisi quod serratum est huic, non Paralysi."

called Buphthalmum. Of the latter he says "Sunt qui Buphthalmum, et bovis oculum appellent. Nam qui Antipatrum vulgarentur eum esse, liquido falluntur. Haec Barbarus."

Hermolaus' Asteriscus.—Hermolaus has another remark for which I have not discovered the Greek foundation, when, *coroll.* 680, he states that the Greeks called poppy-heads by the name of ἀστερίσκος, Asteriscus (*J. Bauhin*, Hist., 2 : 1044.); [from the radiating grooves on the top of the capsule?].

Hermolaus' Identification of Amellus as Chamomile.—Another remark of Hermolaus Barbarus which relates to Aster, is that in book I of his *Corollaries*, c. 59, where he suggests the identity of chamomile with the Amellus of Vergil, since believed to be the Aster Atticus, of Dioscorides. Hermolaus' suggestion is founded on phonetic grounds. That there may be a phonetic connection between these words had occurred to me independently in 1900, before I learned, on May 19, 1901, that Hermolaus had thought out the same solution four hundred years before. My hypothesis was that of the existence of an early generalized plant name, *amilla* or *amella*, meaning little bushy plant, widely diffused in Mediterranean mountain lands anterior to Greek or Latin culture; and that this name survives, 1st, in the modern Greek local name in Arcadia for the mistletoe, of *Mella*, which the Greeks interpret as due to black berries (μελάς, black); 2d, in *Amellus* of Vergil; 3d, in *Chamomilla*, the camomile, χαμαίμηλον, which latter became, from the apple-like scent of its flowers, assimilated to Greek μῆλον, an apple.

Hermolaus offers his theory in this form: "Amilla flos apud Graecos autores quosdam, Gallico vocabulo herba ea qua vocatur anthemis, sive chamaemilon, ut forte amilla vel idem vel similis sit amello, nihil asseveramus, sed in medium posuisse nihil offecit," *i. e.*, Amilla is a flower among certain Greek authors, called so by a Celtic name; it is the plant which is called Anthemis or Chamomile; that perhaps Amilla may be the same or similar to Amellus, I do not assert, but it does no harm to consider it." *

* Wedel, *De Amello*, 4 (1686, Jena), considers the above a *peculiaris conjectura*, and dismisses it as repugnant alike to both Chamomile and Amellus. But Wedel's own judgment was so "peculiar" that he identified Amellus itself with the *yellow melilot*.

LXIII. MARCELLUS VERGILIUS

The author known by these assumed names is called Marcellus Adriani by the historian Tiraboschi; was professor of belle lettres and chancellor of state for Florence, and hence often entitled *Secretarius Florentinus;* was born 1464, or perhaps 1474, suggests Meyer,—as the Secretary describes himself in 1491 as "me adhuc puero"; died Nov. 27, 1521, from a fall from a horse.

Marcellus Vergilius was learned in Greek and Latin, and his notes on Dioscorides* have been much esteemed; Gesner in 1545 pronounced his work "utilissimus"; Haller praises it, Sprengel deems it "laudabilis," and "of the greatest sagacity."

The description of Aster Atticus, in Marcellus Vergilius' Latin translation of Dioscorides, forms chapter 115 of the fourth book. In this chapter Marcellus was first to settle the disputed color-phrase for Aster flowers as "purple *and* yellow," by inserting καὶ in place of ἢ in Dioscorides' text. He was also first to separate from Dioscorides' genuine text, the account of Aster as shining by night; rejecting this as superstitious and unsupported by the oldest Greek and Latin authorities. In this he has been followed ever since.†

LXIV. RUELLIUS

Ruellius, Jean Ruel of Soissons, 1474–1537, canon of Paris, was physician to Francis I, of France, and so remarkable for the learning, elegance and number of his translations into Latin that he has been styled the Prince of Translators. In 1516 he issued his oft-printed translation of Dioscorides, in 1528 that from Scribonius Largus, in 1529 from Celsus, 1530 the "*Veterinariae medicinae*," 1539, that of Joannes Actuarius.

The chapter on Aster Atticus formed number 105 in Ruellius'

* His Latin translation of Dioscorides with his copious commentary was printed at Florence, 1518; again in 1523 from a revision of his translation which he had made shortly before his death; again at Cologne, 1529, when Soter printed the translation, commentary and the second Aldine text together; joining to it in 1530 the Corollaries of Hermolaus Barbarus. Meyer was the fortunate possessor of the 1518 and 1529 editions.

† Marcellus Vergilius was quoted at length and continuously by Brunfels in his "Rhapsodies"; especially tom. i, p. 220–1, on Capillus-Veneris, t. ii, p. 85, Polypodium, ii, 73, Nasturtium, ii, 38, Herb Robert, ii, 31, Solanum, ii, 17; also Conyza; etc.

translation of Dioscorides' fourth book; the flowers he calls "purple *or* yellow." *

IDENTIFICATION OF ASTER WITH *ASPERULA ODORATA* L.

In 1536 (at Paris) Ruellius published his *De natura stirpium libri tres*, a compilation of all that he could find about plants in the ancients; besides recapitulating, p. 633,† what was said of Aster Atticus by Dioscorides and Pliny, he adds (in Latin), "It is deemed by many to be the plant commonly called *Aspergula minor*," an identification based on the star-like radiation of the Asperula stem-leaves; (see p. 339, 343) and "There is another Aster (*i. e.*, star-like leaf) now commonly called *Stella*," meaning Alchemilla doubtless; also "What plant the Aster meant to the ancients I do not know," and "What was the herb which Pausanias calls Asterion, I have not ascertained."

The following uses of Aster are quoted by Ruellius in slightly different form from his predecessors as now known.

"Ad herniam puerorum commendant hanc (Stellam, Ruellius' "Alius Aster," (= Alchemilla)).

"Ejus decoctio quae virgines videri volunt insident ..... (also meant for Alchemilla; a use explained in 1568 by Matthioli).

"Bibitur aster adversus serpentes, sed ad inguinum medicinam sinistra manu decerpi jubent et juxta cinctus alligari; (modification of Cratevas' use of Aster).

"Prodest et coxendicis doleri admota" (modification of Pliny's use of Aster).

LXV. MANARDI

Joannes Manardus, a true son of Ferrara, was born there 1462, and died there 1536; was professor of medicine there, and famed as a practicing physician too, becoming court-physician 1513–1516 to King Ladislaus of Hungary. "A worthy critic of Marcellus Vergilius" Meyer terms Manardi; his critical revision ‡

* Quoting from my copy of edition 1543.

† Quoting my copy of Ruel, 2d edn., Basle, 1537, from the Froben press.

‡ An edition also of his *Epistles*, Leyden, 1549, entitled as of "Io. Manardi Ferrariensis" was used by Sprengel, whose judgment however often differed from Manardus. The *Epistles* were earlier published at Basle, by Isingrin, 1540, under title "*Epistolarum* ... libri xx."

of Marcellus Vergilius' translation and commentary on Dioscorides appeared in three books, 1519–1523, at Ferrara.*

Manardi's Herba Stella.—Manardi was an early observer of the use of the name *Herba Stella* in Italy for *Plantago Coronopus*, the crowfoot-plantain of Europe. Some confusion with Aster Atticus seems to have grown up later, Jean Bauhin's *Historia* in 1650 citing *Coronopus* among the Stellarias liable to that confusion. Dioscorides, or his scholiasts, had mentioned *Astrion*, little star, ἀστρίον, as a synonym for his Coronopus, and Apuleius Platonicus had quoted Aster as a synonym for Plantago. Perhaps these synonyms led Manardus to his assertion that the Coronopus of the Greeks was the plant *vulgo dicitur Herba stella* as he puts it.†

LXVI. CORNARIUS

Janus Cornarius, by birth Hanbut or Hagenbut, issued a Latin translation of Dioscorides at Basle, 1529; called the Aster flowers purple *or* yellow; and remarked on the fact that many herbalists of his time deemed the Aster Atticus of Dioscorides to be the *Aspergula* (Woodruff) which the Germans called *Sternkraut*. So also Ruellius observed, in 1536. The foundation for this erroneous identification lay in the star-like divergence of the narrow whorled stem-leaves of Aspergula (see pp. 63, 333, 338, 343, n.). See p. 390, under *Rivius* for notice of Cornarius' controversial works.

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* From notes printed at Ferrara, 1521, Brunfels published extracts, 1531, under title "Io. Mainardi Ferrarien. Medici nostri seculi clarissimi, Annotationes aliquot Simplicium, e scriptis ejus extractae." These extracts, under the running title of "Censurae Io. Mainardi," form pages 32–43 of Brunfels' *De vera*. Others than Marcellus Vergilius fall under the lash of his censure; and the extracts end with one "*De Turbith*" (cf. *Aster Tripolium* L.) under the title "Reprehensio Messue per Mainardum, et ... de pertinaci errore Collinutii Leoniceno."

† Fuchs, a little later, 1542, remarks of Coronopus: "Sunt qui *Herbam Stellae* nominant, alludentes haud dubie ad graecam appellationem *Astrion*." But the phraseology of Anguillara, 1561, himself notable for his observation of popular names, in his words "Coronopus in multis Italiae locis vocatus *Herba Stella*," points to a vernacular use of the name which might be due to its spreading cluster of leaves like a star on the sea-sand. Gesner (*De hortis Germaniae*, 1561) calls it "Coronopus verus, Herba stella Italorum." Tabernaemontanus, 1588, calls it "Stella maris." Dodoens, 1583, distinguishes it from Aster Atticus, saying that "*Herbam Stellam* non pauci nominant; sunt et qui *Stellariam* nuncupent;" adding that by recent writers the name Stellaria is used for "Alchymilla," and that Aster Atticus is also called Stellaria. (Dodoens' *Pemptades*, 110.)

LXVII. BRUNFELS

Otto Brunfels, first * of the three German "Fathers of Botany," son of a cooper at Castle Brunfels at Mentz, was born probably not long before 1500, and died Nov., 1534 † (when between 35 and 40 according to Meyer's conjecture).‡

Brunfels' great work, figuring 229 plants, the "*Herbarum* in tomis tribus" § of 1539, was first published in its three parts or tomes at Strasburg at different dates, 1530–6.

The figures || are the earliest work of genuine botanical art; the first true and well-executed representations of plants from nature, accurate in detail and exhibiting the whole plant.

Had Brunfels added to the figures new descriptions of like verity, his volume, remarks Meyer, would have been far more an epoch-making book than it was.

A posthumous work of Brunfels, Strasburg, 1543, was his "*In Dioscoridis...adaptatio*," being a list of the Greek names of Dioscorides with Latin and German equivalents, without preface or text.

In his preceding and monumental work, the *Herbarum*, Brunfels occupied part of each volume with his "*Simplicium Pharmacorum*," which consisted of copious accounts of plants, on an extensive plan, each called by him a "*Rhapsodia*," and containing a verbatim citation of what each previous author had said of the

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* Sprengel, and after him Meyer, entitled Brunfels, Bock and Fuchs "the Fathers of Botany."

† Brunfels was at first a student of theology, then a Carthusian monk at Mentz. Becoming a Protestant, he preached at Strasburg three years or more, taught a school there for nine years, studied the Greek and Arabic physicians, took a degree in medicine at Basle in 1530, and was made city-physician (*stadtarzt*) of Berne, but had held it only a year and a half at his death in 1534.

‡ See Meyer, 4: 295 + .

§ The first tome, "*Herbarum vivae eicones*" being printed by Joannes Schottus (John Scott) at Strasburg in 1530 (*ex libr.* Meyer) and reissued without change 1531 (*ex libr.* Bu. and *ex libr.* E. L. Greene); and the second tome begun 1531, its printing finished Feb. 14, 1532. In German translation, as "Contrafayt Kreuterbuch," it appeared 1532 at Strasburg, and the 2d part 1537.

|| The figures were executed (till toward the end of the third volume) by one Hans Weydiz or Guiditius, of Strasburg, whom Brunfels calls "Johannes Weiditz, the beginner of wood engraving."

Joānnes pictor Guidictius ille
Clarus Apellaeo non minus ingenio,

says Brunfels in the prefatory verse.

plant, followed by Brunfels' own "*Judicium.*" Life did not hold out to carry on this plan very far, and in the third or posthumous volume the shrinkage on each species is very manifest. The plants taken, some 229, form a Strasburg flora, with additions from the more remote parts of the Rhineland and from the Hartz mountains. No figure or description of Aster occurs; he did not live long enough to reach it. He twice figures the Stellaria of that day, (the Alchemilla), which many were identifying with Aster, an identification from which he carefully refrained.

In his second volume the principal bulk is formed by a series of papers on the plants of the ancients by Leonicenus, Collinutius, Count von Neuenar, Manardi, etc., etc., among which Bock and Fuchs appear as authors for the first time. Brunfels entitles all "*De vera* herbarum cognitione Appendix." I have frequent occasion to cite this neglected collection, calling it *De vera.* It is headed by an examination of Dioscorides' plants by Brunfels himself entitled *Exegesis omnium simplicium Dioscoridis.*

Brunfels says of Aster Atticus, p. 29, in this *Exegesis*, "De hac herba passim multos consului nec expiscari a quaquam valui quae non essent."

Brunfels' Astericum. — Brunfels carefully distinguished from Aster, the umbellifer celled Astericum by the Romans, the Imperatoria of more modern botany; and he accepted, *tom.* 2, p. 18, the names Imperatoria and Astericum as equivalents, adding that Astericum is not Meu.*

Aster included in Garyophyllon?—Brunfels, 3: 5, may perhaps have been thinking of Aster Amellus when he wrote that Hermolaus, Barbarus and Marcellus Vergilius deemed that a certain plant could not be Garyophyllon because its flowers being blue (caerulea) do not agree. Of this plant Brunfels continues: "Vidimus nos inter hujusmodi *Garyophyllos* eo colore easque frequentes vulgari nomine *Roemisch Negelin*, etiamsi odore minus grato"; *i. e.*, "We have seen among the plants called *Garyophyllon* [several such had been discussed, Dianthus, Cheiranthus, etc.] some of that blue color and occurring frequently, known by the common name of Roman Pinks [*Nailheads*] although with less pleasant odor." See p. 380.

* Cf. J. Bauhin, Hist., 2: 1044.

Perhaps the resemblance which Matthioli remarked upon, of the odor of the root of Aster Amellus to a Dianthus blossom, had led to the inclusion of Aster Amellus under the name *Caryophyllon*, by herbalists of Brunfels' time. See *infra*, under *Anguillara*.

LXVIII. BOCK

Second of the "Fathers of Botany," and author of the first thorough-going survey of the plants of Germany, was Hieronymus Bock,* also known as Tragus, a man of a single book, different editions of his *Kreuterbuch* † forming his life-work.

Before these he had written once on the subject of Dioscorides' plants at the request of Brunfels, whom Bock regarded as friend and master, and to whom Bock sent from Zweibrüchen (Bipontium) on "the nones of March, 1531," his "Opinions" on some 50 plants, of which Aster was the ninth. Brunfels published these remarks, 1531, under the title "*Dissertationes Hieronymi Tragi*," forming pages 156–165 of Brunfels' "*De vera cognitione*," appended to *tom.* II of Brunfels' "*Herbarum*," and its printing completed by Joannes Schottus, at Strasburg, Feb. 14, 1532.

Bock's first expressions regarding Aster. I translate Bock's remarks ‡ concerning Aster, from the foregoing, p. 157 of Brunfels' edition of 1531–2.

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* Hieronymus Bock, 1498–1554; in English Jerome Kidd; called by himself Tragus when he wrote in Latin; born at Heiderbach in the Zweibrücken; was destined for the cloister; embracing Protestantism, he studied medicine at a university, became school-master at Zweibrücken, and was, 1523–1532, superintendent of the garden of the prince Ludewig; then became pastor of the Church of Hornbach in Wasgau; "here he preached the gospel, and also practised as a physician, and continued the free pursuit of his loved science, botany," Meyer, 4: 305, etc.

† Bock's *New Kreutterbuch*, Strasburg, 1539.

‡ Their Latin original reads:

"Herbae Stellariae.

"Inguinalem Dioscoridis, (quod ego sciam) nusquam vidi; licet flosculos et plantas, quorum capitula et folia per orbem incisuris divisa similibus Stellae viderim. Qualis autem Dioscoridis, Plinii, aut Apulei Aster sit, non video. Nam Stellariae permultae. Caprifolium [*Aspergula*], sive Matris-sylva Hieronymi [of Brunswick] stellis ornatur, vestitum, et Aparine stellulis; atque ambo tinctorum Rubiae sylvestrem quandam stelleam herbam, specie et flore Caprifolio non dissimilem, nec tamen ut caprifolium tenax, aut hamata, sed pinguis et lenis herba, quasi calamus filigineus, undique stellulis circumamicta. Est et alia herba [a yellow Galium] lignosa, et omnino ferulacea, quae pari modo stellis vestitur, oblongis tamen, et gracilioribus foliolis, floribus flammeis atque candidis, sed muscosis et densis; quam nostra mulierculae vocant suo idiomate, *Unser lyeben frawen wagstro*. Putavi Dioscor. esse Gallion. Lactuca et Endivia congeneres plantae sunt," etc.

"PLANTS CALLED STELLARIA

"The Inguinalis of Dioscorides, so far as I know, I have never seen; but I have seen various little blossoms and plants, whose heads and whose leaves around the flower's circle were divided into incisions similar to a star. What plant however might be the Aster of Dioscorides, Pliny or Apuleius, I do not see. For there are very many Stellarias. Caprifolium * or the Matris-sylva of Hieronymus (Brunsvicensis) is adorned with stars [*i. e.*, the narrow stem-leaves form stellate whorls], and is clothed with them; and Aparine † is so clothed with little stars, and of both of the kinds of Rubia or dyer's madder, ‡ one kind, a certain wild § and starry plant, is not dissimilar in appearance and in flower to Caprifolium, although not as Caprifolium so tenacious, nor so covered with hooked bristles, but being a succulent and smooth herb, like a reed drawn out into a thread, everywhere set about with little stars. There is also another herb which is woody and altogether like pipe-stems, which is clothed with little leaves equally similar to stars, but oblong, and more slender; with yellow and white flowers, but the inflorescence mossy and dense, which our little girls call in their native tongue, *Unser lyeben frawen wagstro*,¶ or Our loved lady's Way-straw. I have supposed it to be the Gallion ** of Dioscorides."

* Caprifolium here means the modern Asperula or Woodruff; called "*Caprifolium vel Stellaria*" by Brunfels, *Matrisylva* by Brunsvicensis, Bock, Cordus, Lonicerus, and Thal, *Hepatica stellata* by Tabernaemontanus, *Asperula* by Dodoens, Lobel, etc.

Caprifolium was applied to the honeysuckle by Dodoens, *Pemptades*, *411* (publ. 1583), as the *Caprifolium italicum*, was so maintained by Boerhaave and Tournefort; and by Linnaeus, 1753, became *Lonicera Caprifolium*; as is familiar.

The name Matrisylva which we may render Motherwood, had as its German counterpart of the time, Waldtmeister or Woodmaster. Of which Hieronymus Brunsvicensis in his *Apodixis Germanica* (in Brunfels, 1531, tom. II, p. 198), writes (in German) "Waldtmeister, in the Latin Matrisylva or herba Stellaria, has its leaves around the stem like a star."

† Aparine here as ever, means *Galium Aparine* L., the Aparine of Pliny, Brunfels, and Tournefort, the ἀπαρίνη of Dioscorides.

‡ Meaning chiefly *Rubia tinctorum* L.; the *Rubia sativa* of Brunfels, etc., Rubia of Pliny, ἐριθρόδανον of Dioscorides, 3, 160, the ἐροιθέδανον of Theophrastus, 6, 1.

§ Meaning *Galium Mollugo* L.; the *Rubia sylvestris laevis* of Caspar Bauhin (Pinax, 333), the *Alyssum* of Pliny, 24, 2; the *Rubia sylvestris* of Brunfels, etc.

¶ For weg-stroh? *i. e.*, wayside masses of straw or yellow-flowered stems. See p. 361, under Gesner.

** The *Galium verum* L. and of Jean Bauhin; *Gallion luteum* of Caspar Bauhin (Pinax, 335), *Galium* of Matthioli, Cordus, Lobel, etc., the γάλλιον of Dioscorides, 4, 96.

Bock's Kreutterbuch.—Bock's continued studies of the Rhineland plants presently resulted in the production of his great German work, his *Kreutterbuch* or Herbal, the work which has given him an enduring name, and which was first printed * at Strasburg in 1539, without figures, describing about 319 plants. A second † edition, 1546, figured 365 plants, a third in 1551 figured 437.‡ In a translation § into Latin as Bock's "*De Stirpium . . . libri tres*" it appeared again the next year, 1552. Many subsequent editions of the German followed, down to Glaser's Strasburg edition of 1630.

Bock's Kreutterbuch is devoted to the plants of Germany and names no plant which he had not himself seen. He remained unfortunate, however, in his attempts to identify Aster Atticus, still striking out in different directions, and finally settling down on his "Uva lupina."

Blending of Aster Atticus with Herb Paris.—One of the most singular errors made in attempting to determine the plants of Dioscorides, was that by which the radiating ray-flowers of Aster were confused with the radiating circle of leaves of *Paris quadrifolia*. One Golius is cited as stating the existence of this belief, *fide* Bauhin's *Historia*, 2 : 1044, "Theoph. Golius in Onom. —Asterem Atticum ab aliis vvam Lupinam vocari tradit;" Bauhin adding "Aster quidam dicunt, sed non Atticum multi;" *i. e.*, "Golius states that Aster Atticus by some is called Wolf-berry (*i. e.*, Herb Paris). Many do say that it is some certain kind of Aster, but not Aster Atticus." The persons meant by *aliis* and by *multi* above, are to me obscure. They may pass as the

* A rare folio of 262 leaves, entitled "*New Kreutterbuch*," in 319 chapters; a copy was once seen by Pritzel in bibl. Goettingen.

† Meyer possessed the 2d and 3d edition, which drop the word New from the title, but retain the dialectic repetition of the *t*. These and many subsequent editions were folios similar in appearance, printed at Strasburg by Rihel, the 2d in 2 parts, with 350 chapters, 354 leaves, and figuring 365 plants.

‡ Adding to the 2d edition a 3d part with 72 figures "by a young burgher's son of Strasburg, David Kandel by name." Many figures were derived from Fuchs' 1542 Historia.

§ The 1552 Latin edition, derived from the 1551 edition, printed like the foregoing by Rihel at Strasburg. The translation was made with Bock's approval by young David Kyber, who died the next year of the plague, aged only 28, just as his next work, a *Lexicon rei herbariae*, was issued from the press by Rihel.

indefinite background of shades behind Bock, who stands as sponsor for the Aster-lineage of Herb Paris in botanical literature.

Bock describes Herb Paris as an Aster.—Take up Kyber's Latin translation of Bock, and turn to his chapter on Aster, p. 307–8,* and we find an unmistakable figure of *Paris quadrifolia*, headed "'Αστὴρ, *sed non Atticus*, *Wolffsbeer*, oder *Sternkraut*, Diosc., bk. 4, c. 115": that is, combining Dioscorides' chapter on Aster Atticus, and Fuchs' German name for it, with the common German name for Herb Paris,† while yet distinguishing between them by the disclaimer "Aster, sed non Atticus"; under which latter name C. Bauhin indexed Bock's plant in his *Pinax*.‡

Bock's accompanying text is entitled "[chapter] 102, *de Uva lupina seu Astere*." He then describes the appearance of the plant (Herb Paris), remarks that it is called Wolffsbeer and Sternkraut and that by some *mulierculae* it is called from its form, not only Sternkraut but Augenkraut, *i. e.*, "plant which looks like an eye." Bock then adds its uses, taking them largely from Dioscorides on Aster Atticus, prescribing it like that for tumors in the groin, and for a sty on the eye. The next property seems to be due to confusion with the whitlow-wort, *Paronychia*, (sometimes confused under its name *Unguinalia* with the Aster under its name *Inguinaria* or *Inguinalis*); for Bock proceeds to remark, "some say, use it for abscess about the roots of nails." The next property is more uncertain in origin,—"Others say that the berries produce sleep if eaten." Bock closes by remarking: "This plant Uva lupina is evidently, according to my judgment, an Aster; but not that Aster Atticus which Dioscorides called asteriscus, asterion, bubonion, hyophthalmum, *i. e.*, suis oculus, herba inguinalis, Rathibia, and Alibium." The last name was an Arabic equivalent, already used by Matteo Silvatico and by Fuchs.§

Bock also describes Aster as Tinctorius Flos.—In another place

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* Here I quote from the copy *ex libr.* E. L. Greene.

† *Herba Paris* was its name with Anguillara and Matthioli.

‡ Under Bauhin's *Solanum quadrifolium bacciferum*; classing Herb Paris here because of its berry.

§ Other wolf-names used by Bock were *Lupinus* for the Lupine, *Lupulus* for the hop, as familiar still; and *Luparia* for an Aconitum, or Wolf's-bane, the latter name becoming confused with that of Herb Paris among botanists of the period, so that Herb Paris appears in Fuchs, Valerius Cordus and Tabernaemontanus as an Aconitum.

Bock had unknowingly hit upon the real Aster Atticus, *fide* C. Bauhin (*Pinax*, 267); who pronounced the Aster Atticus of Dioscorides and Fuchs to be the same with the *Tinctorius flos primus* of Bock's *De stirpium libri tres;* some three centuries later, this same Aster was given the synonym *Aster tinctorius* by Wallroth.

Bock seems to have classed a number of Compositae together as a loosely conceived genus under the name *Tinctorius flos;* like Dioscorides' familiar practice of grouping plants with reference to properties, still strong with the brothers Bauhin a century later.

Of *Tinctorius flos primus* we learn from Bock * the following: "Flos tinctorius primus, tinctorius spirensibus† Schartenkraut dicitur"; and again, "Hunc florem tinctorium vocat Tragus, et Chamaemelum tertium, et tinctoribus spirensibus Schartenkraut dicitur"; *i. e.*, "the dyers at Speier call Aster, Schartenkraut" or Share-wort, *i. e.*, Inguinalis; "and Bock calls it Tinctorius flos or his third Chamomile." ‡

Bock's remaining species called Tinctorius flos. These include, 2d, *Erigeron acre* L., =Bock's *Tinctorius flos alter*, the *Conyza caerulea acris* of C. Bauhin, the *Amellus montanus* of Colonna.§ Gesner had called it *Dentelaria*, probably comparing the rays to little teeth.

3d, *Inula spiraeifolia* L.?=Bock's "*Tinctorius flos 3*" as the Jean Bauhin marginal citation * runs, otherwise appearing as

* *Fide* Jean Bauhin's *Historia*, 2: 1049.

† Some might claim that the dyers at Speier meant merely madder; citing the modern Ger. Schartenkraut=saw-wort; or literally, notches-plant; if applied once to a prickly Galium, it might possibly have been transferred to madder, the well-known dye plant, Rubia. But nomenclature does not favor this; madder is the Ger. *der Krapp* and *die Farberröthe;* and in time of Bock, its name (besides the Latin Rubea, *Hieronymus Brunsv.*, Rubia *Bock* following *Pliny*) was *Cliben-kraut*, similar to our name *cleavers*. Its clinging relative *Galium Aparine* L., Cliberkraut, survives now in the modern form "Klebenkraut."

‡ Bock's species of Chamomilla or Chamaemelum—both forms were seemingly indifferent to him, or to his translator Kyber—include his C. vulgaris which is our *Leucanthemum vulgare*, his C. nobilis which is the *Anthemis nobilis* of more recent botany, his C. fatua and his C. sylvestre which are the *C. inodorum* and *C. foetidum* respectively, of C. Bauhin.

§ Colonna's Ἐκφράσις, 2, p. 25, t. 26; 1616(*ex libr.* Bu.). Here Colonna, describing *Erigeron acre* under the name *Amellus montanus Aequicolorum* (and figuring it on the next page as "*Amellus montanus*"), remarks that his plant seems in acridity and habitat "to agree with Virgil's Amellus"; adding that "a relative is the Amellus of swamps, which others call Aster Conizoides."

"*Tinctorii floris* tertium genus, das dritt Schartenblumen geschiecht." Gesner also cites this, but as "*Tinctorius flos luteus*, Tragi." Jean Bauhin deemed these as probably synonyms of his "Conyza media Monspeliensis, quibusdam Asteris Attici genus folio glabro rigido;" called by Caesalpino "*Asteris Attici altera*;" by Lobel, *Aster montanus*; by Caspar Bauhin, *Aster* 5. Jean Bauhin notes of it that "Frater Casp. Bauhinus misit collectam Basiliensibus montibus, nomine *Asteris conyzoides* Gesneri." This plant appears in Linnaeus as *Inula spiraeifolia*.

4. *Chrysanthemum segetum* L.,=Bock's *Tinctorius flos 4*; Caspar Bauhin (*Pinax*, p. 134) styled it *Chrysanthemum foliis matricariae*, etc.

Such are the plants *Aster Amellus* L., *Erigeron acre* L., *Inula spiraeifolia* L., and *Chrysanthemum segetum* L., which Bock classed together; the first and last, at least, used in a rude way for dyeing, and all, if not first-class dye-stuffs, at least looking as if they ought to be so. Singularly enough, Bock, who was a law unto himself, is at variance from his chief co-workers in the use of this term "*Flos tinctorius*," which in the usage of many others meant the *Genista tinctoria* * of modern botany, a plant much more important to dyers than those chosen for the title by Bock.

When Bock was classing together his dyer's plants as "*Tinctorius flos*," it would have seemed natural had he included among them the *Anthemis tinctoria* of modern botany; but for that he used the old name *Buphthalmum*, in which practice he was followed by Matthioli and Clusius and at times by Gesner. Perhaps Bock varied at times, however, and at the time of writing of his *Tinctorius flos primus* intended to include *Anthemis tinctoria* under it, under his name of *Chamaemelum tertium*.

Finally, Bock is cited by Jean Bauhin, 1: 1044, as using the phrase *Aster Atticus flore medio luteo* as a name for what Jean

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* *Genista tinctoria* had also the right of authority to the name in question, being the *Flos tinctorium* of Brunfels, Bock's master, and the *Flos tinctorius* of Fuchs and Lonitzer, as well as of the later Italian herbalist, Durante, in 1585; but Bock called it *Ferula*. Anguillara and Caesalpino termed it *Coroneola*. Valerius Cordus named it *Chamaeleuce*, and again *Hedera terrestris*. Its modern name, *Genista tinctoria*, made a contemporary appearance among them in Dodoens, was seated in use by adoption by Caspar Bauhin, and was sealed for the future by acceptance by Linnaeus.

Bauhin there calls *Chamaemelum eranthemum*,* and his editors endorse as also the *Chamaemelum aureum* of many. This plant was the "*Chamaemelum aureum peregrinum capitulo sine foliis*" of Bauhin's *Hist.*, 2: 119, where it is described in full, but without synonyms earlier than Clusius' translation of Dodoens, 1557. Linnaeus recognized it as a congeries of species, his *Anacyclus aureus*, *Cotula aurea* and part of his *Anthemis nobilis* being its equivalents.

Bock uses the following Aster names:

1. Aster, sed non Aster Atticus = his Uva lupina, *Paris quadrifolia* L.

2. Aster Atticus flore medio luteo = *Anthemis nobilis* L., etc.

3. Asterion = *Cannabis sativa* L.; "to Cannabis the name Asterion also belongs," *Bock*.

4. Asterion = *Marrubium album* L.; which, says Bock, "may be the Asterion of Pausanias."

5. Tinctorius flos primus = Aster Atticus, *fide* C. Bauhin, *i. e.*, *Aster Amellus* L. Perhaps Bock also included in it *Anthemis tinctoria* L.

6. Tinctorius flos alter = *Erigeron acre* L., the *Amellus montanus* of Colonna.

7. Tinctorius flos iii = *Inula spiraeifolia* L. = Aster conyzoides of Gesner, some say, = Aster Atticus alter of Caesalpino, Aster montanus of Lobel, Aster 5 of C. Bauhin.

8. Tinctorius flos iv = *Chrysanthemum segetum* L.

LXIX. FUCHS

Leonhard Fuchs,† the third and youngest of the "Fathers of Botany," completed, with Bock and Brunfels, the trio of workers from nature who mark the beginnings of the modern spirit in botany. He was himself the first to print an identification of the Aster Atti-

* *Chamaemelum eranthemum* among other authors leads far astray from the original chamomiles; to Dodoens and Gesner it meant *Adonis vernalis* L.; to Fuchs it meant a larkspur, the *Consolida regia* of Bock.—Bock used the name Chamaemelum (in his form Chamomilla) for most of the species so called by his contemporaries and still called chamomiles to-day; he named at least four so; but this fifth chamomile he separated, deeming it an Aster Atticus.

† Leonhard Fuchs, 1501–1566, born at Membdingen in Bavaria, in school at Erfurt, 1512, distinguished himself in the University there in Greek and Latin studies; went in 1519 to Ingolstadt, where he took his doctorate in 1524 and soon, learning of

cus of the ancients with the plant which was since known as *Aster Amellus* L. Hermolaus Barbarus had taken it to be the Stellaria of that time, which we now know as *Alchemilla;* Ruel and at first Fuchs had let it pass as such; but between 1532 and 1542 Fuchs had made a more careful reading of Dioscorides' description, perceiving his Aster Atticus could not be Alchemilla, that no star-like leaves would meet the conditions, and that purple or blue rays around a yellow center with hairy oblong stem-leaves and woody little stem must all be combined in the plant meant. Such a plant he found among the wild plants of Germany,* apparently at the time known to him by no German name; identifying it with Aster Atticus he called it *Sternkraut* or the star plant, and Sternkraut has ever since remained the formal name in German for the flower.

Fuchs early distinguishes Aster from Eryngium.—Fuchs' first work, his *Annotationes* on Dioscorides, appeared 1531–2 as an appendix to Tom. II of Brunfels' *Novi Herbarii.* Its last chapter, No. 34 (p. 155 of the "*De vera cognitione*), is devoted to *Alibium*, Arabic name for Aster Atticus as Fuchs claims, attacking the identification by Matthaeus Sylvaticus of Alibium as Eryngium; under which author find the passage of Fuchs quoted, p. 304. Fuchs then continues:

"Annotandum tamen, eandem herbam alio nomine a nostris appellari Stellaria, e positura et forma, quibus stellae modo radiata," alluding to the common identification then current of Aster with Alchemilla.

Fuchs follows with quotations about Aster from Paulus Aegineta and Dioscorides, but adds nothing new; except this remark:

"Praeterea non praeter eundem, quod apud Avicenna *secundo Can. cap. 17* falso scribatur *Atratisus*, pro *Aster Atticus*, ita fere omnia herbarum nomina apud eundem corrupta sunt."

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pher's writings, and becoming a Protestant, began medical practice at Munich. In 26 he was professor of medicine at Ingolstadt; in 1528 he became court-physician Margrave George von Brandenburg at Anspach, where he remained five years and e a translation of the Hippocratic writings; at 1533 he again became professor of dicine at Ingolstadt; and 1535–1566 he was professor at the then young university Tübingen, where he died 1566.

*Possibly Valerius Cordus first made it known to Fuchs; Cordus made the same ntification, perhaps in 1539.

Fuchs surpasses all of his Century in his Figures.—In 1 Fuchs published his masterpiece, his *De historia stirpium*,* at Isengrin press of Basle, a folio of 896 numbered pages, fam its 512 large and life-like woodcuts (over 400 of which re scented plants native to Germany), styled *pulcherrima* by Pri (no. 3427). Sachs (History of Botany, transl. by Garnsey, 18 p. 19) says of it that "Fuchs' splendid figures remained un approached." Fuchs himself says that his figures were new a original, that they were delineated from nature, that the pla figured had never been figured from nature before, and that work had been wrought out at great expense and elaborated long vigils. He says that his sole care had been that the figu be absolutely true; that his utmost diligence was devoted to m sure that in every plant depicted, root, stem, leaves, flowers, se and fruits should all be exhibited; that "he took heed that shading or other device by which printers sometimes seek ade to their art, should obscure the clear native form of plants, nor would he permit his painters to indulge in any eml refinements of fancy. The wonderful industry of the painters (H rich Füldmaurer and Albert Meyer)† was rivalled by that of engraver, Vitus Rodolphus Speckle,† the best woodcutter in St burg, who so ably expressed the lineaments of each painting t he seems almost to have entered into a strife with the painters victory. So Fuchs describes ‡ his work in his "Epistola nun tatoria" "at Tubingen, in the calends of March, 1542."

Aster in Fuchs' Figure.—A view of Fuchs' life-size figure of A

* Fuchs' History was soon translated into Dutch, French and Spanish; but the most notable translation was that of the very next year, by Fuchs himself, into Ger according to his "New Kreuterbuch" of 1543. Fuchs' descriptions of species in the sh [illegible] do not equal those of Bock; but in his German rendering he mad [illegible] much fuller and more lifelike. So at least Meyer considered them; Fuchs was not himself satisfied, said that to him "pleraque non erant satis distinc [illegible] wrote to his friend the Königsberg professor and physician Aurifaber, [illegible] to revise it from the beginning; that it was proving a great undertak

"crescit tamen operis moles,"

[illegible], but that he believed it would not be unpleasing to the studious—

"studiosis non ingratam...confido."

[illegible] work on it the next ten years, when it was still unpublished at his d [illegible] known of the manuscript was its appearance at a sale in Vienna in 1

† The [illegible] of the three are given, edition 1542, page following 896.

‡ [illegible] to of this Epistola; edn. 1542 (*ex libr.* Bu.).

Atticus in this rare and expensive volume may be sought in America in my own copy and in that at the Missouri Botanical Garden, where the Sturtevant collection of Prelinnaean botany contains a copy of this as well as of many of the subsequent reduced editions. In the small editions which followed, the figure was greatly diminished, finally even to only 2½ inches in length.* It may be seen, reduced, in the little edition of Basle, 1545 (figures only, without text), *ex libris* Colu., and in the edition of Leyden, 1551, *ex libr.* Bu. This figure shows about a dozen heads terminating rather stiff upright branches, the whole plant double from its base, two stems rising together from the same mat of thickened fibers. A peculiarity is the presence near the base of the stronger stem of an irregular dense cluster of six or seven stem leaves, brought together by suppression of internodes, a common abnormality, common especially in Aster, and scrupulously retained by copyists of Fuchs' figure and so serving as sign-manual of Fuchs' original as it passed on almost to the present time by repetitions in Ryff's *Dioscorides*, in Lonitzer's *Kreuterbuch*, in the *Historia Plantarum* of J. Bauhin and his editors as late as 1650, and perpetuated apparently even to the Ehrhart edition of Uffenbach's *Kreuterbuch* of 1783.

On the other hand it is not the figure of Matthioli, nor does it bear close relationship to those of Dodoens, Lobel, Gesner and Camerarius, Gerard or Parkinson, none of which, for example, possess the mid-cauline rosette.

Fuchs' Aster description.—Fuchs' chapter on Aster Atticus in the Latin edition, the *De historia plantarum* (I quote from the edition of 1542) occurs in its alphabetical place, p. 132,† as chapter 47. Fuchs followed Brunfels' plan of dividing each plant chapter into topics, the topics printed as titles. I quote all except the matter under his heading "vires" or properties, which repeats without change what Dioscorides, Pliny and Galen said of the Aster's virtues.

It will be observed that in his description under the head "Forma," Fuchs makes the received identification of Dioscorides' Aster for the first time.

* Numerous later editions of Fuchs continued, with poorer and poorer execution, as far as the French edition of "Leonard Fucus" printed by Oudot at Troyes as late as 1673, with woodcuts styled "pessima" by Pritzel.

† Or in the Leyden edition of 1551, p. 139.

"De Astere Attico. Cap. XLVII.

NOMINA.

"Ἀστὴρ Ἀττικὸς, Βουβώνιον Graecis, Aster Atticus, Inguinalis Latinis dicitur. Officinis ignota herba, Germanis Sternkraut [Gallicè Petit Muguet ou Herbe de l'estoille]* commodè appellari potest. Asteris autem nomen, non a foliorum in caulibus, sed in floribus potius figura et situ, accepit. Si quidem foliorum in huius herbe flore numerus et forma, stellam prae se ferunt, vel ut Plinius ait, capitula per ambitum divisa foliis pusillis, stellae modo radiata sunt. Errant† itaque qui singula folia in caulibus stellae formam repraesentare putant. Bubonium et inguinalis, quod inguinem praesentaneum sit remedium, dicta est.

FORMA.

"Cauliculus lignosus purpureum et‡ luteum in summo florem habens veluti Chamaemeli capitulum undique per orbem incisuris divisum, foliolis stellae similibus. Quae verò circa caulem sunt folia oblonga et densa hirsutave. Ex qua quidem deliniatione omnibus perspicuum fit, herbam cuius picturam exhibemus esse Astera Atticum. Nam caulis ejus lignosus est, foliis vestitus oblongis et densis, in cacumine flos illi purpureus et luteus, stelle modo radiatus, qui subinde in pappos abit: radix fibris multis capillata.

LOCUS.

Nascitur in collibus, montibus altis, et sylvis.

TEMPUS.

Augusta mense ut plurimum floret, durantque in magnam Autumni partem ejus flores.

TEMPERAMENTUM.

Mixtae est potentiae, uti rosa; refrigerat enim, non tamen vehementer, et digerit atque exsiccat, quod scilicet illi amara insit qualitas.

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* Additions in the Leyden edition of 1551 I enclose in brackets.

† Evidently Fuchs here intends to express his repudiation of the identification of Aster with Alchemilla, which he had cited in 1531–2.

‡ It will be noticed that Fuchs understood not disjunctively but collectively the "purple and yellow" of Dioscorides *fide* Marcellus Vergilius; unlike Cornarius, 1529, who had made it "purple or yellow."

VIRES....

[ADNOTATIO.]

[Aster atticus tuus hic non cognitus.*]

Fuchs' Second Aster or Pulicaria

In the editions with figures only (1545, Basle; 1549, Basle, etc.) Fuchs entitles his figure "*Aster Atticus purpureus*,"† as if Fuchs was now perceiving the existence of more than one Aster Atticus. Citations indicate that in some subsequent edition he must have definitely named a second species, cited as the *Aster Atticus luteus of Fuchs*, by Lobel, *Obs.* 187, in 1576, who reproduces and modifies Fuchs' accompanying ‡ figure, which represents *Pulicaria dysenterica* Gaertner.

His name, however, is usually associated only with the first plant, *Aster Atticus purpureus* of Fuchs, which became the *Aster Italorum et Fuchsii* of Clusius, the *Aster Atticus Fuchsii* § of Jean Bauhin's marginal notation, the *Aster Atticus Fuchsii flore punicco* of Benedictus Aretinus; ¶ and which is our familiar *Aster Amellus* L.

LXX. DORSTENIUS

The *Botanicon* by Theodorus Dorstenius,** printed 1540 by Egenolph at Frankfort, was a rearrangement of the plants of the ancients. The plants follow chiefly in the same chapters as in Dioscorides, rearranged alphabetically, with figures. His chapter on Aster Atticus, p. 157,†† does not appear under that name but as De Inguinali; an abstract is as follows:

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* "*Not known here*"; an addition in the Leyden edition. But evidently it was familiar in nature to Fuchs from some source; as perhaps at Basle where he printed first; or Ingolstadt where he had studied; possibly only from the Jena plants discovered (1539?) by Valerius Cordus.

† Adding as a German name, "Braun Sternkraut," apparently misprint for "Blau Sternkraut."

‡ Page 427 of Fuchs' Hist., edn. 1551, misapplied there, to his "Calamintha tertia."

§ J. Bauhin, Hist., pl. 2: 1045.

¶ In Aretinus' three-page list of plants growing on Mts. Stockhorn and Ness in Switzerland, printed with Valerius Cordus' works at Strasburg, 1561.

** Theodorich Dorsten, born in Westphalia, a professor of medicine at Marburg and practicing physician at Kassel; died in 1552.

†† Citing from copy *ex bibl.* E. L. Greene.

Annotatio; derived from "Galen, Aegineta, Dioscorides, Plinius," and Marcellus Vergilius.

Descriptio; quotes Dioscorides, including the appearance as a "phantasma," adding "Vergilius Marcellus hoc confutat atque reijcit, tanqũ superstitiosum aliquid, quia in antiquissimis Graecis Latinisque autoribus non inveniatur.

"Quidam etiam Bubonion à bufonibus, hoc est, venenosis vermibus dictum volunt, quod non solum ineptum ac falsum est, sed etiam contra omnem autoritatem veterum, fingunt enim quod bufonibus Inguinalis magna sit medicina, quando in pugna cum araneis habita victi fuerint et vulnerati atque icti ab eis. Et quod bufones aliaque animalcula venenosa huius herbe gratia in locis petrosis se contineant, atque ea herba se reficiant atq sanent.

"Vires (good for burning stomach, for the eyes, for buboes, hemorrhoids, in labor,—'quod in flore ejus purpurascit,'—and in epilepsy): pluck it with the left hand; 'caduco morbo laborantibus opitulatur, ut Apuleius testatur.'"

"Si baccas Asterii, id est inguinalis dederis manducare Luna decrescente, quum erit signum Virginis, et ipsam herbam laborans habeat in collo suspensam, remediabitur.

"*De iringo*" follows as the next chapter.

Dorstenius story of the Aster's usefulness to toads and other *animalcula venenosa* was doubtless one of the reasons leading Meyer [4: 336] to term his Botanicon "a puerile, uncritical compilation." But his 284 figures supplied by the printing house of Egenolph are of great value for so early a date as 1540. Though he gives figures for most plants mentioned, and in particular for those discussed immediately before and after Aster, for Aster itself he gives none. Egenolph's house must have had a figure of Aster in stock, that made from Eryngium and used in the *Gart der Gesundheit* (issued by Egenolph 1533 and 1536 in Rhodion's revision); but Fuchs in 1531 had discriminated Aster from Eryngium, and Dorstenius,—or Egenolph,—had discernment enough not to repeat the error. In fact, he seems to have perceived that he did not know what native plant was true representative of the ancient Aster Atticus. He forebore to mention any native equivalent in his chapter on the subject. The first step toward true knowledge is the perception of ignorance. Dorstenius had

reached that stage in 1540. By 1542 Fuchs had advanced the next step, had discovered the correct plant and had published its figure; and by 1543 Egenolph had appropriated this figure and was publishing it reduced in his "Ryff's Dioscorides."

LXXI. EURICIUS CORDUS

Euricius Cordus, Simesusius, 1486–1538, physician, botanist and philologist, friend of the philologist Eobanus and of Joachim Camerarius, was born at Siemershausen in Hesse, 1486, and died at Bremen 1538–9. He was father in 1515 of the great Valerius Cordus; called by the Landgrave Philip to the new Protestant University of Marburg, he there translated Nicander into Latin verse, 1527; and wrote a German Theriaca (1532, Frankfort, by Egenolph); and also his chief work, his Botanologicon (printed by Gymnicum at Cologne, 1534, a rare octavo; in *bibl.* Meyer) chiefly concerning errors in interpretation of Dioscorides' plant-names; with an index summarizing the results for 350 plants. The latter was reprinted 1549 by Egenolph at Frankfort in a 9th edition of Ruellius' translation of Dioscorides, forming pages 534–541, under the name "Judicium de herbis" (*ex bibl.* Columbia Univ.)

Euricius Cordus joined with the current opinion of his period in identifying Aster Atticus with the Stellaria of that time, meaning probably *Alchemilla.* He was influenced by Fuchs' judgment as published in Brunfels' *De vera*, 1531, and followed him in identifying the Alibium of the Arabs with Aster Atticus, not with Eryngium. His words are as follows: *Judicium*, p. 534, etc.

"Aster Atticus, est Inguinalis, quem male apud Serapionem per Eryngio accipium, nomine decepti Herbarii."

Again, p. 535, "Bubonium, id est Alibium, Inguinalis, Aster Atticus, Stellaria."

LXXII. VALERIUS CORDUS

Valerius Cordus, son of Euricius Cordus, born 1515 at Siemershausen, Bavaria, studied medicine in the University of Wittenberg (where he became the friend of the renowned Breslau physician, Crato von Kraftheim), and as early as 1535, at Nuremberg, published first his oft-printed *Dispensatorium pharmacorum omnium*, the oldest German pharmacopoeia. After lecturing on Dioscorides

at Wittenberg, he turned as Meyer remarks from the ancients to nature herself, and roamed in search of plants and minerals over the mountains of Middle Germany, especially the Erzgebirge, the Hartz and the Thuringerwald. Perhaps it was first in these journeys that he found, "on the mountains about Jena," as he says,* twenty years or more before its famed university was founded,† the wild Aster Atticus growing in its violet and yellow, as he declares with much positiveness in his notes on Dioscorides. Possibly it was earlier still, and may have been while still a student at Wittenberg, from whence a walk to Jena was but a trip of some fifty miles.

Possibly it was about the time of his attendance at Wittenberg, in 1539, when he listened with his friend Crato to Melancthon lecturing upon Nicander. At all events it seems to have been the first modern discovery of apparently genuine Aster Atticus that we know, unless it was anticipated by that of Fuchs, who published his first genuine identification in 1542, and must have made it some time before, text not only being written but the intervals for the painters and the engraver and the presswork, all to be deducted from his date of 1542. So far as appears, Valerius Cordus‡ and Fuchs both deserve the credit of independent discovery of the wild plant, and independent identification with the plant of Dios-

* I quote all which Cordus has to say of Aster: "Astera Atticum Arabum interpretes, et Pandectarum autor Matthaeus Sylvaticus, cum Eryngio confundunt, sed foedo errore. Sunt enim diversissimi generis herbae. Ruellius quoque Astera Atticum non recte indicat, quamvis non suam, sed aliorum de hac herba opinionem ponit. Ego autem scio me verum Aster Atticum in montibus circa Jenam invenisse. Non enim melius historiae convenire posset, tam exquisité respondent descriptioni omnes ejus herbae partes. Nascitur in petrosis montibus, ut quaedam etiam Dioscoridis exemplaria indicant. In quibusdam etiam exemplaribus de floribus eius leguntur *ἀνθος πορφυροῦν ἢ μήλινον*, idest, flore purpureum aut luteum, sed falso. Non enim in quibusdam locis purpureos et in quibusdam luteos habet. Sed utrunque colorem simul iisdem flores ostendunt. Quapropter *πορφυροῦν καὶ μήλινον* idest, purpureum et luteum, legendum est. Hoc enim alia exemplaria et ipsa floris figura testantur. Media namque floris pars luteam habet colorem, circa quam parva et purpurea foliola, ut in Chamaemeli floribus videmus, disposita sunt, quo sit ut purpureo et luteo simul colore Asteris flos describatur." Valerius Cordus' "Annotationes in...Dioscorides," 4, cv (in Rivius' Dioscorides, 1549, p. 515, *ex bibl.* Colu.).

† In 1558.

‡ Cordus gave three lecture courses at Wittenberg on Dioscorides that were so successful that even older men attended them, as Professor Andreas Auritaber of Konigsberg; *Meyer*, 4: 317.

corides; though it is not impossible that information from some of the public lectures by Cordus may have given Fuchs a suggestion that set him on the true path. Fuchs' language, however, indicates personal knowledge, and his description of the continuance in bloom from August to October seems to be a statement that is peculiar to himself. Perhaps Cordus and Fuchs may have both discovered the wild plant as early as 1539.

In 1542, the year that Fuchs was publishing his great work, Cordus was travelling in Italy. There he spent a year in Padua, Ferrara and Bologna, then went to Florence, Pisa and Lucca, and finally to Rome, where he was taken ill, died and was buried, September, 1544, before completing his 30th year, though already taking rank, in estimation of Meyer, as one of the greatest botanists that Germany had produced.

Posthumous works of Cordus included his *Annotations* * on Dioscorides and his *Historiae Stirpium.*† In both he treated the Aster Atticus of Dioscorides as the species now known as Aster Amellus (*fide* C. Bauhin).

Cordus also described, by the name *Anthyllis minor*, a plant, the *Tripolium III* of C. Bauhin, which was regarded by the latter as closely similar to the *Aster Tripolium* of modern botany.

Cordus' second aster, Anthemis Tinctoria.—Cordus and his editor Gesner indicate a perception that the ancient Greeks sometimes included Buphthalmum in their Aster; a probability which I have pointed out under Hippocrates' plant polyophthalmon, p. 107. This appears in Cordus' posthumously printed "*Historia stirpium*"; written 1540,‡ but to which Gesner on printing it in 1561 added figures from Bock and some fifty of his own. Among these added figures was one labeled Aster Atticus but really representing a type commonly received for Buphthalmum in that century and which became later the *Anthemis tinctoria* L. Probably the figure was one of those received by Gesner from Bock; which

* First published by Egenolph, at Frankfort, 1549, in the second edition of Rivius' Dioscorides (*ex bibl.* Colu.) and again with corrections, Strasburg, 1561, by Rihel.

† Written 1540, printed Strasburg, 1561, bound with the preceding, 4 books, describing in a masterly manner the plants of Germany. A fifth book described 25 plants he had observed in Italy (Rihel, at Strasburg, 1563; and again, in Schmiedel's *Gesner*, with additions from a MS. of Gesner, Nuremberg, 1751).

‡ So Gesner remarks.

strengthens the probability that Bock meant to include *Anthemis tinctoria* L. in his *Tinctorius flos primus* or Aster (p. 347).

Cordus' third aster, Anthemis nobilis, etc.—A third Aster so called, which was credited * to Cordus in Gesner's edition of 1561 was a figure representing the *Chamaemelum aureum* of that period, chiefly *Anacyclus aureus* L., but claimed † to include forms later classed as *Anthemis nobilis* L., and *Cotula aurea* L.

So Cordus, who probably himself recognized only one *Aster Atticus* and that the true one, in his posthumous work by the addition of mistaken figures was made to recognize three kinds of Aster Atticus, one of which alone represents three different genera of to-day.

Cordus finds both purple and yellow in Aster.—Cordus was a principal authority for the emendation of Dioscorides' color-phrase for Aster from "purple *or* yellow" to "purple *and* yellow," see citation, p. 356, n. He was so strong an authority that Saracenus, in opposing that view, mentions Cordus *first*, though his emendation was *last* to be published. Perhaps no stronger proof of Cordus' power as a botanical influence need be sought.

LXXIII. GESNER

Conrad Gesner, perhaps the most broadly developed naturalist of the sixteenth century, was a man whose intellect had the whole world for its range, but whose actual travels were singularly circumscribed for that active age. He lived and died in Zurich, his birthplace, was during much of his life professor in its university, and strayed but little beyond, though he visited Paris and Strasburg, Baden and the Rhaetian Alps. The son of a poor Swiss furrier, and born 1516, his uncle pastor Friccius is thought by Meyer to have given him his first schooling and his impulse to botany. But Gesner's boundless thirst for knowledge and his tireless activity were limited by bodily weakness and cut short by his death of the plague while yet in his prime, December 13, 1565. ‡

* *Fide* J. Bauhin, 2 : 1044.

† *Fide* Richter's *Linnaeus.*

‡ The very year of his completion of the labors of Moiban in editing the *Euporista* ascribed to Dioscorides, as referred to p. 139.

Gesner's writings include botanical, bibliographic, linguistic, medicinal, mineralogical and zoölogical works; especially, among those non-botanical, his "*Mithridates,*" Zur., 1555, "*seu de differentiis linguarum,*" 8vo, called by Meyer the first research

Gesner's Botanical Writings.—Those published in his lifetime formed but a fragment of what he planned; as Meyer remarks, "in comparison with what had been printed by Brunfels, Bock, Fuchs, and even by the early-dead Valerius Cordus, Gesner stands far behind, though really taking rank as the greatest among them."

These botanical writings actually published by Gesner still remained few at his death, though beginning so early as 1541, when his "*Enchiridion historiae plantarum*" appeared at Basle, Paris and Venice, a work of nearly 300 pages, intended as a compend of the botanical knowledge of the ancients, but rare and not within my reach.

In 1542 he published at Zurich his complete catalog of plant names, under title "*Catalogus plantarum*," * giving names in their Latin, Greek, French and German equivalents; together with their names then in use among apothecaries; and with addition of the Dioscoridean synonyms.

Other botanical works of Gesner include his quarto "*De raris et admirandis herbis*," † 1555, itself now rare and practically unat-

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on the German language; his "*Bibliotheca universalis*," Zur., 1545, and its continuation the "*Pandectae*," Zur., 1548; and his "*Historia Animalium*," 1550–1587 (chiefly included in the great folio of 1554, *ex libris* Bu.), which, as Cuvier remarked, laid the solid ground for the newer zoölogy.

Gesner's linguistic work caused him to be termed the "father of German philology"; and many traces remain of his sagacity as critic of the classics; as his copy of the Aldus' edition of Didymus' Homeric Scholia (1521) with additional MS. notes on the text in Gesner's hand (*ex libr.* Bu.).

* I think Gesner's catalog contained the fullest list of ancient aster names published prior to the present issue. In 1549 (not 1543 as Pritzel has it, no. 3594) this "catalogus" was republished; or, rather, it formed the basis of Gesner's *Index* published by Egenolph, pages 541–554 of his 1549 edition of Rivius' notes on Ruel's Dioscorides. This *Index* consists of the Latin and Greek names only, striking out the French and German, and omitting all remarks. Its Aster names include (p. 543, *ex bibl.* Colu.), besides Aster Atticus:

"Asterion = Aster Atticus."
"Asterion = Cannabis."
"Asterion = Sphondylion."
"Asteriscus = Aster Atticus."
"Asterope of Aegineta = Marrubium."
"Astertiphen [among] Aphris = Chamaemelum."
"Astrismunim [among] Aphris = Solanum hortense."
"Astrion = Coronopus."

† A quarto of 86 pages, printed at Zurich by two of the Gesner family, Andreas and Jacobus Gesner; and of which a copy bearing the autograph of the great Conrad

tainable; his *Epistles* to various botanists, as to Wm. Turner in 1562, the father of English botany; those to Caspar and to Jean Bauhin, to Collinus "*de Tulipa Turcarum*," and to Joannes Kentmann; his unaddressed epistles published jointly with Guilandini;* his *De hortis Germaniae*, † and his great unfinished *General History of Plants*. In this and in the preceding *De Hortis* Gesner's chief Aster contributions were contained.

Gesner's great contribution to the knowledge of Asters resulted however from his clear perception of plurality of species in the genus Aster. This belief was indicated in Gesner's publication of three different plants by the name of Aster in his edition in 1561 of Valerius Cordus; and it showed its influence within two years on Matthioli, primate of conservative botany, in the appearance in 1563 of the *Aster Atticus verus*, of Anguillara and of Gesner, as Matthioli's second Aster, *Aster Atticus alter*.

That Gesner should recognize other Asters than Aster Atticus was characteristic of his outlook upon botany. He did not believe in monotypic genera. He stands still to-day as perhaps the most notable of examples of that disbelief. In a letter he said "There is probably no genus of herbs which is not to be divided into two or more species. The ancients described one gentian;

Gesner himself was sold in London, 1846, for 10s. 6d. In this work, various new plants of Gesner's discovery were first published, both in descriptions and figures; with additions regarding the Alps, including descriptions of Mount Pilatus near Lucerne by Gesner and by DuChoul, and of the Stockhorn near Berne by a native, *Rhellicanus Stockhornius*.

* "*De stirpium ... nominibus vetustis*," or "Two epistles, one by Melchior Guilandini the Prussian, the other by Conrad Gesner; on certain ancient names of herbs, of which through ages physicians have been ignorant or have been in doubt; as Mamiras, Moly, Oloconitis, Doronicum, Bulbocastaneum, Granum alzelin and habbaziz, etc.;" Basle, 1557, p. 45, with figures; in Latin; a rare octavo, in the Dresden library. With additions from Guilandini of three epistles comprising 26 opening pages. This was republished 1558 at Padua, a rare folio of 48 pp.; also in the Dresden library, its title beginning "*De stirpibus aliquot epistolae IV.*"

† Printed by Rihel at Strasburg, 1561 in folio, in one composite volume with Gesner's edition of Valerius Cordus' works (Annotations on 5 books of Dioscorides; the posthumous "*Historia stirpium*" in 4 books; the "Sylva" containing notice of certain German fossils, metals, stones and plants; a book "*De artificiosis extractionibus*;" another on some "*Compositiones medicinales*"). Gesner's part was entitled "*De hortis Germaniae liber recens*, una cum descriptione Tulipa Turcarum, Chamaeceras montani, Chamaemespili, Chamaenerii, et Conizoidis." It was written in the winter of 1560, containing a catalog of all known gardens, especially in Germany, together with notes of notable plants possessed by them, and very often with their nativity.

to me ten or more species are known." Gesner was also an early example of that true scientific patience which waits for another season's growth in order to determine a Composite species; for to one who sent him a fasciate Cichorium as a new species, he gave directions "*futura aestate diligentius observabis*," for said he, "if from its seed another plant like itself is produced, you may suppose it to be natural; if not, it is not a natural species."

Gesner also held an attentive ear to the plant-names of the people,—though not always without error in identification, as appears the case in his Wagstroh, which he names as vernacular * for Aster Atticus, a name meaning way-straw, wayside-straw, (English *bedstraw*), reported by Bock in 1531 for a Galium, which Galium was doubtless, like its relative Asperula, mistaken for Aster by some one who reported its name to Gesner as an Aster-name.

"*Gesner's Aster.*"—By this term we may distinguish the plant long known as *Aster conyzoides Gesneri*,† and which passed as a

* See his *De stirpium collectione Tabulae*, which first appeared as an Appendix, pp. 467–548, to Gesner's edition of Kyber's *Lexicon rei herbariae*, Strasburg, 1553; reprinted under name of Caspar Wolf as editor, Zur., 1587 (*ex bibl.* Colu.).

† The known history of *Aster conyzoides Gesneri* may be briefly sketched as follows: It was described as *Conizoides* by Gesner, 1561. It appeared, in Lobel's "*Plantarum Historia*" or "*Observationes*," Plantin press, Antwerp, 1576; (p. 189, *ex libris* Bu.) with figure, p. 188, a figure of the whole plant, reduced to five or six inches, showing nine heads resembling those of *Erigeron Philadelphicum* L., the figure being entitled "*Aster conyzoides Gesneri*," and with the following description:

"ASTER CONYZOIDES. CONYZOIDES GESNERI.

"In Anglia, Belgio et agro Louaniensi juxta academiae pomoeria frequens hic oritur; facie, foliis et surculis dodrantalibus, interdum et majoribus Conyzae minimae. Flores asteris obsoleto luteo in pappos dehiscentes."

It was the plant meant by Caesalpino in his *De plantis libri XVI*, 1583, by his name *Aster atticus tertius, fide* C. Bauhin.

It was next printed as *Aster conyzoides Gesneri*, by Molinaeus (Des Moulins) in his continuation of Dalechamp's *Historia Plantarum Generalis*, Leyden, 1587, 1: 822 (*ex libr.* Bu.), with repetition of Lobel's figure, and appropriation of part of his text, but without adding anything new.

It is perhaps the "Fifth kind" of "Starrewort" mentioned by Gerarde in his Herball, 393 (1597), but without figure, and simply with the remarks "There is another sort [of Aster] that hath a broune stalke, with leaves like the small Coniza. The flowers are of a dark yellow which turne into downe that flieth away with the wind like Coniza. The roote is full of threds or strings."

In 1616 Fabio Colonna in his *Ecphrasis*, 2: 25, referred to it as "palustri Amello, quem alii *Asterem Conisoidem* appellarunt."

species of Aster from 1576 to 1650, then as a species of Conyza, of Chrysanthemum in 1699, Asteroides in 1703, Asteriscus 1720; finally finding rest in Linnaeus' Buphthalmum of 1737 and 1753, being still known as *Buphthalmum grandiflorum* L. Gesner published his Conizoides as one of a number of brief independent descriptions appended to his *De hortis Germaniae* of 1561—in which work appeared his *Aster Atticus verus* (=Buphthalmum L., now *Pallenis spinosa* Cassini).

That Gesner entitled it simply Conizoides in his brief work of 1561, where this formed one of a series of fragments hastily printed, gives in itself no mature and deliberate expression of his classification for it, and perhaps in his too short and crowded life he never decided that subject. What it does indicate is simply that he recognized in it a plant intermediate between typical Aster and typical Conyza, a range of plants of multifarious diversity, for the next century alternately vibrating between Aster and Conyza in classification.

It appeared in Caspar Bauhin's *Pinax*, Basle, 1623, as his 8th species of yellow Aster, by name of *8 Aster luteus angustifolius*, without description, but with reference to its occurrence in Lobel, Dalechamp and Caesalpino.

At least ten years before this, Caspar Bauhin had thought that he recognized Gesner's plant while collecting in the Alps about Basle, and had sent it to his brother Jean (who died in 1613) under the name of *Aster conyzoides Gesneri*. The specimen sent seems to have been one of *Inula spiraeifolia* L., and after being duly mentioned in Jean Bauhin's writings before his death, 1613, finally reached publication in 1650. See *supra*, under Bock.

It was described by Parkinson, 1640, in his *Theatrum Botanicon*, p. 130, as "*Aster conyzoides*, Fleabane-like Starrewort," being his eleventh species, with a repetition of Lobel's figure, enlarged; and with the remark:

"Wee have had from Virginia another sort of this kind, very like unto it, but with smaller flowers"; perhaps referring to some Erigeron.

In 1650, at the final publication of Jean Bauhin's *Historia plantarum*, it was given a new but mischievous and confused treatment under the name *Conyza marina*, being united with a Conyza marina of Dalechamp. The description by Jean Bauhin was meant in the main for the plant later known as *Erigeron tuberosum* L., and afterward as *Jasonia tuberosa* Cassini, 1822. With this, a new and excellent figure was now given (J. Bauhin, *Hist. pl.*, 2: 1055). New localities were cited about Narbonne; "Gener Cherlerus Narbonensi copiosè observavit et collegit in campestribus illis juxta Montem Lupa." New but fallacious synonyms were added, as of Rauwolf, *Chondrilla Dioscoridis altera* (so mentioned in Rauwolf's *Raiss* or Travels in the East, 1583, as from Syria; reprinted under the same name by Molinaeus, 1587; and by Clusius, 1601, as *Chondril'a altera Dioscoridis putata*; probably it was the *Chondrilla ii. bulbosa angustifolia major* of C. Bauhin's *Phytopinax*, 1596–, cited by J. Bauhin,

Other Asters of Gesner

Gesner's collections and printed works recognized perhaps five species of Aster, as then regarded; as follows:

1. *Aster Atticus verus* of Gesner's *De hortis Germaniae*, 1561; = C. Bauhin's *Aster Atticus luteus foliolis ad florem rigidis* (*Pinax*, 266) = *Pallenis spinosa* Cassini.

2. *Aster Atticus* of Gesner's *De hortis*, cited by C. Bauhin, *Pinax*, 267, as synonym of his own *Aster Atticus caeruleus vulgaris*, which is *Aster Amellus* L.

3. *Aster conyzoides Gesneri* of Lobel, 1576, first printed as Conizoides in Gesner's *De hortis;* = *Buphthalmum grandiflorum* L.; already treated, p. 361–363.

4. "*Aster Atticus tertius*, e sicca Thomae Pennei, Wolph." With these words Schmiedel,* editing Gesner's works in 1751, entitles a figure of a plant somewhat resembling *Aster concolor*, being fig. 46 in tabula 6. That is, this was one among the collection of figures which Gesner was making ready for his projected universal history of plants,† and which passed into the

1650, as a second synonym for this *Conyza marina;* in 1623 it was the *IX. Chondrilla bulbosa Cyriaca foliis angustifolius* of C. Bauhin's Pinax).

Jean Bauhin's confusion of the Jasonia with the original Conizoides (*Buphthalmum grandiflorum* L.) seems to have led Bobart when completing, in 1699, Morison's Historia plantarum, to publish (2: 118) as *Aster conyzoides Gesneri* a plant, a relative of the Jasonia, with a new figure different from that of Jean Bauhin. Linnaeus, 1753, classed the plant of Morison as a variety γ of his *Erigeron tuberosum*, now *Jasonia tuberosa* Cassini.

The true *Aster conyzoides Gesneri* of Lobel and C. Bauhin was meanwhile published in Bobart's completion of Morison (3: 21) as *Chrysanthemum perenne minus*, etc. By Tournefort, 1703 (*Corollarium*, p. 50), it was called *Asteroides alpina, salicis folio*, repeated by Micheli in 1748 (in his posthumous *Catal.* pl. horti Florentini, edited by Targioni-Tozzetti: 12, t. 5). By Linnaeus, 1737 (Hortus Cliffort., 414) and by Royen, 1740 (Florae Leydensis, 170), it was placed in Buphthalmum, with a phrase-name, reduced to binomial form as *Buphthalmum grandiflorum* by Linnaeus in 1753, a name still retained for it by Nyman and others, though De Candolle, 1835, because of intermediate variations, merged it in his *Buphthalmum salicifolium* L.

Tournefort listed also in 1700 (*Institutiones*), an *Aster conyzoides odoratus luteus* as a quotation from Besler in his *Hortus Eystettensis* of 1613: considered by Linnaeus to be his *Inula squarrosa*.

* *Gesneri Opera Botanica*, Nuremberg, 1751 (*ex libr.* Bu.).

† For the projected "Geschichte der Pflanzen" into which these latter Asters were presumably to pass, Gesner had prepared over 1,500 plant-figures, chiefly original and some from Bock. Gesner's sudden death came while he was engaged on a final revision. The figures passed to Camerarius, who mingled them with his own and so pub-

[illegible] and Joachim Camer-
[illegible] (see *infra*). Gesner's
[illegible] made from a dried speci-
[illegible] correspondent, the London
[illegible] one of the first English
[illegible] Gesner and for his executor
[illegible] figures which were left un-
[illegible] were afterward given their
[illegible] young Jean Bauhin. This
[illegible]ntly one of Gesner's figures
[illegible]s 1566, within a few months
[illegible]y begun to carry out Gesner's
[illegible]ble, however, that the figure
[illegible]ff after Gesner's death. Its
[illegible]s in lack of any description ac-
[illegible]certain.

[illegible]ving," § so its figure, "LXXII,"
[illegible] edition of Gesnerian figures.
[illegible]ched composite with peculiarly
[illegible] 13 narrow taper-acuminate rays,
[illegible]es.

[illegible]ser with many rare plants before

[illegible] Trew, who enlisted the services of Schmie-
[illegible]gures, and published 274 of them, 1751 and
[illegible]quality, and often including small drawings
[illegible]ser's own remark "From the seeds I am
[illegible]s of plants." Meyer, 4: 333, gives Gesner
[illegible] to perceive the need of drawing the seed and
[illegible]t in 1542). An example is his Aster Atticus
[illegible]gured by itself, etc.
[illegible], friend, colleague and editor.
[illegible]del edition of Gesner remarks, *Historia operis*
[illegible]dantly how zealously, long before his distin-
[illegible] was engaged in searching the mountains and
[illegible] France for plants." Penny devoted himself
[illegible]om London to Camerarius about insects as late
1580, having aided Wolff by sending plants and
[illegible]del, xlvi). See also vol. i of Pulteney's *Sketch*

[illegible]anist, who died 1506; his "Raiss" or Travels

1565, from his travels in Syria, etc., *fide Schmiedel*, 1 : xxxiii. This figure probably originated with Camerarius, the Nuremberg physician, and may have been from a painting by Jungermann, who was engaged in that work upon Gesner's plants at Nuremberg from 1584 to 1588.

Gesner's Chief Contributions to Aster Knowledge. — Either through his direct efforts or as their result soon after his death, Gesner became authority for the 5 different "Asters" just mentioned.

The idea of plurality of species in the genus seems to have been directly and clearly brought forward first by him.

He was first to have small details drawn *separately*, as the seed and disk-flower.

He was, 1561, one of the first to adopt *Pallenis spinosa* Cassini as the true Aster Atticus; some who anticipated him in this being Anguillara in Greece and Italy, Rondelet, Pena, and the young Clusius in southern France.

He was, in his plant Conizoides, the first to describe and publish, 1561, the plant known for much of the next two centuries as *Aster conizoides Gesneri*; *i. e.*, *Buphthalmum grandiflorum* L.

LXXIV. ANGUILLARA

Aloysius Anguillara, coupled with Cesalpino by Pulteney as "two of the soundest critics in the knowledge of plants that the age produced," was born it is supposed, at the village of the same name, in the Papal States, about 1500. His first name also appears under its equivalents Aluigi, Luigi, Louis, Aloysio, Ludovic, etc. He is not to be confused with Giovanni Andrea dell'Anguillara, the contemporary poet, 1517–1565, who is better known to the biographers.

Anguillara's Search for the Plants of Dioscorides.—Anguillara, says Haller, was "first of his race to make researches * upon the

* Anguillara's botanical travels extended through all Italy from the Abruzzi to Venice; through Sicily, Sardinia and Corsica; southern parts of Switzerland and France; Dalmatia, Illyria, Slavonia, Macedonia; through Greece into the Morea; in Cyprus, Corfu, and many other Greek islands; making, as Meyer remarks, genuine botanical observations, though during exactly how many years we know not; if covering about 15 years, they may have begun in 1525. He remained longer in Crete, where the worthy apothecary Costantino Rodioto from Rhodes took him into his house as his friend. With him Anguillara studied the medicinal plants of Crete, calling him in after years "*Il mio carissimo maestro.*"

plants of the ancients in the land of the ancients"; which Meyer amends by adding "after the revival of learning," remembering how Simon Januensis was making the same researches 300 years before.

Anguillara's botanical work under Ghini commenced in 1539, on his return to Italy, where he remained * at Ghini's private botanical garden † at Bologna, till 1544 when he removed with him to Pisa ‡ and so remained in 1545, forming for him a deep veneration; § Luca Ghini being the only other besides the Cretan Rodioto whom Anguillara always calls "*maestro.*"

Anguillara the Director of the Botanical Garden of Padua.— This next period of Anguillara's life, 1545–1561, was that associated with the botanical garden at Padua, for which the Venetian government made definite provision first in 1545, but which seems to have been already developing for some years under Buonafede, professor in the University of Padua, 1533–1549.

Buonafede or Buonafidius says Gaetano Monti (*Indices botanici et materiae medicae*, Bologna, 1755) "established in 1545 a botanical garden *amplum et splendidum*, for the use of the University of Padua, Aloysius Anguillara Romanus, a disciple of Luca Ghini, being called to undertake its charge." The date of Anguillara's assuming charge as "*Custos*" of the garden is given as 1546 by Marsili, who says his directorship extended from 1546 to 1551. Three or four distinct positions in connection then with this botanical garden seem to have coexisted at times; first, that of professor of medicine, including materia medica, held by Buonafede 1533–1549, who was succeeded by the celebrated anatomist Gabriele Fallopius, discover of the Fallopian tubes. Their professorship included the chair styled *Lectura simplicium.* Second, that of *Ostensior simplicium;* its occupant styled *Ostensor simplicium*, being a demonstrator or docent in medical botany.

* Anguillara's *Semplici*, 36 and 120.

† Ghini seems to have maintained this from 1534 to 1544.

‡ Luca Ghini (see p. 328) accepting the call in 1544 to the University of Pisa, a garden was at once begun there also and was formally established in 1547, with Ghini as director and also as the University professor of materia medica or "*Lector simplicium.*"

§ Wm. Turner, first English botanist, then a religious exile, was also a listener of Ghini, *fide* Pulteney, who links together Anguillara, Cesalpino and Turner as Ghini's chief pupils.

Meyer remarks (4 : 262) "the position of Privatdocent among us seems to have had its beginning in this of *Ostensor simplicium*." The three first at Padua to be recorded as *Ostensor* were Aloysius Mundella Brixianus (of the generation older than Anguillara apparently, his only printed works appearing in 1538, at Basle, by Isengrin,—being corrections of Galen and of Brasavola); Aloysius Anguillara, 1549–1551, Pierantonio Michiel, 1551–1555 (so dated by Marsili, 1771, saying that he greatly enriched the garden; a contemporary letter of Aldrovandi also speaks of Michiel as in charge of it); Anguillara again, 1555–1561; Melchior Guilandini 1561, who was made *Lector simplicium* in 1561 through the exertions of Fallopius, and held it till his death in 1589; under him in 1563 a definite *Collegium botanicum* of Padua was first recognized; after him came Prosper Alpinus, "6th prefect," the celebrated investigator of the plants of Egypt.

Third of these simultaneous positions was that of *Custos horti*, or Director of the Garden; usually united with the preceding, but which Anguillara is said (by Marsili) to have held earlier, from 1546 onward, or three years before he is mentioned as Ostensor.

Marsili ("*Notizie* del publico giardino de semplici di Padova," written 1771, *fide* Meyer, though first printed by Visiani, at Padua in 1840) names Anguillara as first director of the garden, and Monti mentions him as the means by which the garden became built up on Buonafede's magnificent plan, the plan adopted by Venice in 1545. Anguillara is said to have been Buonafede's choice to execute this plan, so the date 1546 seems none too early for his beginning. He had doubtless been practically engaged on similar work during the period 1539–1544, which he had spent in botanical work with Ghini at his private garden at Bologna, and it was doubtless partly on that account that Anguillara was spoken of by a contemporary as a director of great experience. Now he anticipated Ghini in working out the establishment at Padua of this garden, of all botanical gardens the first, it has been said, to be maintained at public expense. The next year, however, 1547, Ghini himself secured a similar formal establishment for his garden at Pisa, founded by the government of Florence, which was induced, it is believed, says Monti, "by the recent example of the most

sagacious senate of Venice." But for a year the pupil had outrun the master.

Of Anguillara's life and work at Padua, we know little in detail, but the results would make him illustrious had he done nothing else. The garden speedily assumed the highest rank among botanical gardens. Belon,* visiting it in 1549, and afterward comparing it with those of the Turks, writes in 1553, that he found none more remarkable or elegant.† Belon is supposed by Meyer to have meant to name Anguillara though momentarily confusing him with the older Ostensor, Aloysius Mundella, when he wrote after his visit to Padua in 1549, that "To the botanical garden of Padua had been called a man, *vir diligens et magnae experientiae.* Dominus Aloysius Mundella ‡ (a slip for Aloysius Anguillara) herbarius Romanus, who had devoted himself to the learning and culture of his period, and who is now able to exhibit *Guajacani arbores* there grown § by his (Mundella's?) own diligence."

Anguillara is further styled by Marinello, 1561, as *Semplicist* to the Venetian government, which may have involved other duty than that of being director of the garden. Anguillara's friend Quadramio was similarly styled "Simplicista" to Ferrara, in the Latin of C. Bauhin.

Anguillara's personal duties certainly must have been very many; uniting the functions of director and docent, "he had" says Meyer, "not only the charge of the living plants of the garden, but it was his duty to arrange and demonstrate all the simples or medical remedies living and dead, vegetable or non-vegetable."

Anguillara's persecution by Matthioli (see *infra*, p. 386) had its

* Pierre Belon or Bellonius, French botanical traveller, who repeated in his own journeys the endeavors of Anguillara to see and know the plants of Dioscorides in their native soil. Born in 1517, he made his oriental journeys 1546–1549, and in Paris in 1553, he finished writing an account of his travels, which had been through Greece, Asia Minor, Palestine, Egypt and Arabia. This was printed in three volumes in French, 1554, at Paris, and was later translated into Latin by Clusius, whose version of the *Observationes* appeared at Antwerp at different times, first in 1589, separately, and in 1605, bound in with Clusius' "*Exotics.*"

† "Nullum vidimus magis singularem et elegantiorem" as Clusius rendered it.

‡ Aloysius Anguillara was properly called Romanus, but Aloysius Mundella should have been *Brixianus.*

§ Perhaps this last statement about the trees really belonged to Mundella as the elder man.

innocent cause in Anguillara's correcting errors of Matthioli respecting *Lycium* and *Aconitum*, an offense which was unpardonable, although the corrections were respectfully offered and only two in number. It was equally offensive that Anguillara had interpreted a number of other classical plant references in a different way from Matthioli. Matthioli had already driven the learned Amatus from place to place in Italy; and now he stirred up such a storm against Anguillara as drove him in 1561 from Padua. The one * botanist of eminence who joined Matthioli in this persecution was Aldrovandi,† successor of Luca Ghini at Bologna, to whom Matthioli wrote saying, "I am charmed that you have found out Anguillara for what he is, that he is *prima* per ignorantissimo, malignissimo, ed invidiosissima."

However, Ferrara gave welcome to Anguillara, and he is thought to have held a professorship in its university, though his reputation remained under a cloud for two hundred years till Haller reëstablished him in the esteem of botanists, 1771. Since then, Gaertner dedicated to his memory a genus *Anguillara*, and when this was renamed *Badula* by Jussieu, Robert Brown bestowed his name anew upon a genus of the Melanthaceae. He received much appreciation at the hands of Sprengel, Du Petit Thouars, Hoefer and Meyer. All this posthumous fame had begun 200 years too late. His death was at Ferrara in 1570, due to the plague, or "pestilential fever" says Mazzuchelli, and followed close on his return from a voyage to Apulia with the "friar Evangelista Quadramio" ‡ (so Hoefer) § where he had been making researches among plants. Taken ill, he prepared for him-

* Perhaps Anguillara's beloved master, the famed lecturer, Luca Ghini, might, if living, have been of help to his former pupil in this extremity. The fact that Ghini had given over the manuscript of his projected work on medicinal powers of plants to Matthioli for incorporation in his commentary, is no evidence that Ghini, who had received the Puritan Turner, would now have joined in the persecution of Anguillara.

† Ulysses Aldrovandus, "more zoölogist than botanist," first director of the Bologna Botanical Garden, 1567–8; lector simplicium there in 1561; followed there by Andrea Cesalpino, "the greatest botanist of the century"; [and soon followed, in 1577, by Boerhaave with his botanical garden at Leyden].

‡ "Evangelista Quadramius Eremita, Theol. Doctor" and Semplicist to the Duke of Ferrara, as Caspar Bauhin terms him; author, 1597, at Ferrara, of a quarto tract, "*De Theriaca et Mithridatio.*"

§ In *Biographie Générale.*

self a Theriaca, or compound medicine, as among the ancient Greek physicians; an evidence at that time, remarks Meyer, of unusual knowledge of plant remedies: but it availed nothing, and he died soon after its operation, Oct. 1570, seven years before the death of his antagonist, Matthioli, from the same dread disease.

Anguillara's Semplici.—The only work by Anguillara which has come down to us is his *Semplici*,* "his rare libellus," as Sprengel calls it, "in which he seeks to correct the text and illustrate the plants of Dioscorides by his own observations." † In his *Semplici*, Anguillara, says Hoefer, "recounts a great number of plants which he had compared with the descriptions of Greeks and Romans, endeavoring to establish an agreement between ancient and modern names, especially with those of Theophrastus and Dioscorides, and for which he consulted the manuscripts still existing of some ancient rhizotomists. From all his painstaking researches he was able to discriminate with great exactitude 500 plants, but did not class them systematically, and he names them sometimes by their ancient names, sometimes by their common names current in his own time. Anguillara was the first to make known to us the *Salicornia fruticosa*, *Jasminum grandiflorum*, *Salvia pomifera*, *Camphorosma monspeliaca*, *Ruppia maritima*, *Anchusa tinctoria*, *Solanum lycopersicum*, *Quercus Aegilops*, etc., etc."

Meyer says of Anguillara's *Semplici*, "He shows in it rare

* "Semplici, liquali in piu Pareri a diversi nobili huomini scritti apaiono. Nuovamente da M. Giovanni Marinello mandati in luce. Vinegia, typ. Valgrisi, 1561, 8, 304 p."

† This work consists of "*Opinions* on plants of Dioscorides," published not by Anguillara himself who was in distress, but by his friend Marinello. An abstract of these opinions going about from hand to hand, Marinello persuaded Anguillara, after much reluctance, to give his permission to print. As printed they are arranged in the form of 14 *Pareri* or Opinions, addressed as epistles to eminent men, and written from Padua at different times between 1549 and 1560. They are not arranged chronologically, but are dated as follows: no. 7, 1549, 10, 1555, 1 and 6, 1558, 11, 3, 8, 13, 1559, the others, 1560. They are in Italian, and were printed in quarto, octavo and duodecimo, the octavo edition (*ex libris Meyer*) having two woodcuts added, entitled *Chamaeleon* and *Sempervivum major*. A Latin translation by Caspar Bauhin with notes was published at Basle, 1593; no copy of which perhaps now exists. Copies of the Italian editions of 1561 are extremely rare; Sprengel had one, obtained from Ciro Pollini; Meyer also obtained his from Italy, from his friend Visiani. The Library of the New York Botanical Garden has recently (June, 1902) secured a copy. Haller and Seguier had seen copies, but Pritzel seems never to have seen one.

reading of the ancients, from Aristotle to the Geoponica, and of the Arabs and the modern Latins. Not even a word of an obscure poet escapes him, if it but throw light on any plant. He was not contented with the printed text but went direct to the MSS. for doubtful cases, of which he was a sagacious critic. He was equally great as philologist and as plant-identifier. He was obliged often to antagonize his predecessors in his identification of the plants of the ancients; but from the courteous and unassuming way in which he did this, we know him to have been of unprejudiced mind. Haller rightly calls him *facile princeps* among Italian botanists, and *maximus auctor*."

Anguillara as a Source for Cratevas.—In his *Semplici* Anguillara publishes "a great many extracts from Cratevas * which are not otherwise known," remarks Meyer, 1:252. The extracts made number 37: but their most recent investigator, Wellmann, thinks they add little to what had been already familiar as incorporated in the text of Dioscorides.†

Anguillara says little of the MS. of a fragment of Cratevas which was his source; simply under *Asarum*, that "there had come into his hands a fragment of Greek MS. of an ancient writer, out of which he took what Cratevas had written regarding Asarum"; and in the following extract, "What one can see, out of some fragments of Cratevas, that I have set down." ‡ This is all he says about the MS.

Anguillara's Identification of Aster Atticus with Pallenis.—The *Aster Atticus verus* of Anguillara's Semplici is, *fide* C. Bauhin, the plant now known as *Pallenis spinosa* Cassini; the principal rival §

* See page 120.

† Where they do not agree with Dioscorides, they often agree with Pliny; showing, as Meyer remarks, that Cratevas was known independently to both.

‡ Sprengel asserts, on what authority is not evident, that Anguillara's MS. of Cratevas came from the Marcus Bibliothek at Venice, and further, that Sprengel received transcriptions from it containing the bare names of plants and their properties, made by his friend Weigel. Meyer, some thirty or forty years later, induced his friend Visiani of Padua to go to Venice to make inquiries about this codex, without positive result, Visiani being told there that the only MS. of Cratevas known to them is the small 4-sheet fragment in the Imperial library at Vienna.

§ The relations of Pallenis with Aster may be briefly summarized as follows:

1525. Perhaps it was about this time that Anguillara, doubtless already familiar with *Pallenis* in Italy, now saw it in the Morea and at Zante and other parts of Greece. Sibthorp in 1796 heard it called *καρφόχορτον* in Zante; a popular name used for it in

in that century to the Aster Amellus of Linnaeus for the honor of identification with the Aster of the Greeks; yet to be considered in connection with its description by Lobel, and its early selection as Aster by Rondelet and by Clusius.

Anguillara's article on Aster is as follows, translated from the Italian of his *Semplici* p. 284, where it occurs in the latest of his letters, "Parere Quarto-decimo," dated 1560.

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the sense of nutgrass? *i. e.*, plant bearing bur-like heads. (Compare ἀγριοσκάρφη, name of *Inula oculus Christi, fide* Sibthorp.) The magnificent illustrated edition of the Flora Graeca (Astor Libr.) figures it under name of *Buphthalmum spinosum*, showing six large heads with short yellow rays and with long star-like stiff involucral leaves, radiately projecting and recurving a little.—But it was not till 1560 that Anguillara wrote of *Pallenis* in his *Pareri* as the same with Aster Atticus of Dioscorides.

1550. Clusius comes to sojourn with Rondelet at Montpellier and finds *Pallenis* abundant there, which Rondelet (and others there before him?) identify with the classic *Bubonium, i. e., Aster Amellus* L.

1561. Clusius finds the properties of *Bubonium* and the name *Bobas* are currently applied in Spain to Pallenis.

1560–1. Gesner, writing this winter his *De hortis Germaniae*, printed 1561, names Aster Atticus as the plant we now know as Pallenis; probably Gesner had not seen it in its native habitat, his slight travels seeming not to have ever extended so far. His knowledge of *Pallenis* was probably due to his extensive correspondence, and may have come to him through one of Anguillara's privately circulated epistles or *Pareri;* or may perhaps have come through Rondelet or Pena.

1561. Anguillara's *Semplici* and Gesner's *De hortis*, both published this year, name the Pallenis as "*Aster Atticus verus.*"

1563. Matthioli introduces a figure of this Pallenis into the margin of his Aster-chapter as "*Aster Atticus alter*, without text or other comment; evidently an afterthought and doubtless an unacknowledged debt to Anguillara. Perhaps Matthioli had already inserted the figure in his (unseen) 1562 edition; but not earlier, as it is lacking in the next previous edition of 1560. This figure was occasionally copied, and represented Aster Atticus in Lobel's *Observationes*, 1576, and in Bodaeus à Stapel's *Theophrastus*, 1644.—Dalechamp, 1587, also retained Matthioli's name of *Aster Atticus alter* for Pallenis.

1566–9. Lobel, sojourning with Rondelet at Montpellier, and afterward with Pena at Narbonne, derived from the first or from both of these his identification of Pallenis with Aster Atticus, and it so appears published without figure, in Lobel and Pena's *Adversaria*, 1570; and with figure, 1576, as just mentioned.

1576. Clusius publishes in his *Hispania*, Pallenis as *Aster Atticus primus flore luteo.*

1583. Cesalpino publishes Pallenis as *Aster Atticus.* So Gerarde, 1597, Tabernaemontanus, 1588.

1601. Clusius publishes *Pallenis* as *Aster Atticus legitimus*, and figures it as "A," i. e. *Aster.*

1640. Parkinson in his Theatrum Botanicum was still figuring Pallenis as *Aster Atticus.*

"I have marvelled much, how it can be that learned men, and men who have made profession of interpreting Dioscorides, have oftentimes made error in interpreting, and still do so, in the chapter concerning Aster Atticus. Some think that the words πυρρυρούν ἢ μήλινον (*i. e.*, Aster, that has blossoms either purple or yellow), ought not to be taken disjunctively, but that instead Dioscorides meant to include two distinct things [plants] in one. But how much they deceive themselves can be made clear in every particular. For the true Aster Atticus grows in many parts of Italy, with five little sharp-pointed leaves, placed in order in the manner of a star, and in the middle of which it makes its flower. The flower has a yellow color, like the flower-head of the chamomile, or else has a purple color. It makes its stalks higher one than another, woody and hairy, with leaves similar to the olive, but roughish, and somewhat pilose. It is called in many places in Italy, *Filius-ante-patrem*, among the herbalists, and in Greece in the Peloponnesus and in Zante they call it δωδεκαμωνῖτις."

Anguillara's Filius-ante-patrem.—Anguillara, who left many of his plant-names in vernacular form, may have intended *Pallenis* by his *Filius-ante-patrem.* Such was the conclusion of Caspar Bauhin, but not that of Sprengel, who remarks "What plant Anguillara means I cannot conceive."

That Anguillara intended the *Pallenis spinosa* of Cassini may be claimed on the following grounds:

1. Pallenis is common in Italy and Greece, and the Mediterranean region in general; 2. It has often occasioned remark for its star-like flower-heads; see Lobel; 3. It has stems and leaves hirsute; 4. Pallenis, although currently described as with golden-yellow rays, and so figured by Sibthorp, was said by Lobel and Pena in 1570 to have "leaflets of the flowers which grow purplish underneath, in certain localities; though not purplish within as in Aster Tripolium."

5. *Pallenis spinosa* Cassini, though known as Oculus Christi at Montpellier (name current there in 1550, *fide* Clusius, Lobel, etc.) in Anguillara's time, may have been also then known as *Filius-ante-patrem* in Italy. This name, *Son-before-the-father*, would be appropriate to Pallenis, which is remarkable for its frequent lengthening of lateral flower-stalks far above the older more central

head, as remarked by De Candolle, *Prod.* 5: 487. It may be that Matteo Silvatico intended Pallenis when he wrote about 1313 in his Pandects that there is a plant resembling the Buphthalmums which is called *Filius-ante-patrem* by some, and *Oculus-Christi* by others. It may be that Da Manlio, when repeating this remark (with Silvatico in mind) about 1450, also intended to speak of Pallenis, in saying "There is an herb which is called Filius-ante-patrem or Oculus Christi, or Oculus Consulis, as herbalists please."

The chief objection to Pallenis as representing Anguillara's *Filius-ante-patrem* is that its occasional purple under the floral leaves may seem too feeble a character to have drawn out from Anguillara the expression "it bears flowers either yellow or purple."

Among Compositae common in both Italy and Greece there remains, however, such a group of plants, which might be called yellow or purple in different stages of flower; it is typified by Tragopogon.* Curiously enough the names Anguillara used also point to this same group. The Zante dialectic name δωδεχαμινῖτις † if interpreted "quick-closing flower," is very appropriate, and if interpreted "noon-closing flower," it expresses the Tragopogon character still more closely; expressed similarly by the English

* *Tragopogon pratensis* L., the *Tragopogon* of Theophrastus, Dioscorides, Pliny, Fuchs, Anguillara, Matthioli, Gesner, Lobel and most other writers, came as more species were distinguished, to acquire a name which itself indicated this color-change, becoming the *Tragopogon flore luteo, purpureo ac puniceo* of later pre-Linnaean botany, including Dodoens, Cesalpino, J. and C. Bauhin, Pontedera, Tournefort, Boerhaave, Morison and Vaillant.

Of the kindred *Tragopogon porrifolius* L., called "rose-purplish or yellow-purplish" by De Candolle, Albertus Magnus wrote regarding this change of color as far back as 1260, saying:

"*Oculus porci* is a plant bearing a flower which reddens greatly with age and when dry still retains that color;" "in cujus supremo est flos rutilans ipse multum, et exsiccatus retinet eundem colorem." Albert of Lauingen's *De Vegetabilibus*, bk. 6, c. 547; edn. Meyer and Jessen, Berlin, 1867.

† Δωδεκαμινῖτις; apparently for "twelve-little-parts blossom"; *i. e.*, "twelve-hours flower" (flower closed by noon); or if rigorously applied "twelve-moments flower (flower that soon perishes); from μινέττω or μινοῦτα, now current Greek (says a Greek recently from Athens) to mean "a moment, as when one says I will be gone but δωδεκαμινέττω, but twelve minutes, but a moment; and some say so everywhere nowadays; μινοῦτα some call the word; it was a Latin word once [L. *minutus*]." *Attica.*—I find no very similar word to δωδεκαμινῖτις in modern Greek vocabularies, the nearest suggestions being δωδεκάμηνον, a twelve month (Lowndes), and Cretan dialectic διμηνήτης, "a kind of brown wheat which remains for two months in the ground, two months in mod. Gr. being δύω μῆνας" (*Spratt*, Travels in Crete, London, 1865).

name "*John-go-to-bed-at-noon*" as far back as about 1650 (Morison).

The Latin name *Filius-ante-patrem* leads to the same goal. About 1313, Silvatico wrote that *Garyophyllon* is called *Filius-ante-patrem* and *Filius-ante-patrem* is called *Oculus Christi.** Da Manlio,† citing this about 1450, added another synonym, *Oculus Consulis.* This latter name is as rare as it is remarkable, but an ancient gloss on a Wolfenbüttel MS. of Hildegardis occurs ‡ which makes it a synonym of *Oculus porci.* Now *Oculus porci* in Germany throughout the Middle Ages was a common name for *Tragopogon porrifolius* L.

We cannot therefore deny that Anguillara's *Filius-ante-patrem* may have meant to him *Tragopogon porrifolius*, including with it

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* Pandects of Matteo Silvatico saying,

"Filius-ante-patrem latine. Arabice Tariff, graece Garyophyllon. Plinius. Est herba faciens florem sicut buphtalmos; sed ramos post natus, excedit longitudine ante natum, et ob hoc Filius ante patrem vocatur. Et vocatur similitur oculus Christi. Avicenna in secundo dicit, quod est planta quae nascitur in vere; et flos ejus similis est Croco hortulano." The interpretation of this seems to be as follows:

"Filius-ante-patrem is a plant name in [mediæval] Latin. It is used for the plants called Tariff by the Arabs and Garyophyllon [or leaf smelling like spice-nuts] by the Greeks [*i. e.*, the clove-pink, carnation, etc.]. Pliny mentions the Garyophyllon, too [but only as name of the clove tree]. Garyophyllon is [also the name of] an herb [Tragopogon? Pallenis?] which produces flowers like the buphthalmums or oxeye-daisies; but differs in having its later-developed branches exceed in length those before-developed; and on this account it is called Filius-ante-patrem. And it is called, similarly, Oculus Christi.

"Avicenna in his second book mentions Filius-ante-patrem as a flower which is produced in spring; and its blossom is similar to a garden crocus [meaning doubtless the same *Colchicum* which is called *Filius ante patrem* by Parkinson]."

† Da Manlio, in Brunfels' *De vera*, 170, "Oculus Christi vel Oculus Consulis, secundum Matthaeum, est Filius-ante-patrem."

Da Manlio, 167, in his chapter *De Garyophylleis*, speaks more at length, first discussing the clove-pink and carnation, then passing to Tragopogon or Pallenis, saying:

"Reperitur etiam herba, quae dicitur Filius ante patrem, sive Oculus Christi vel oculus Consulis, ut volunt herbarii. Forma vero ipsius reperitur apud Mathaeum sylvaticum. Et haec herba apud nos nascitur in pratis. Verba Pandectarii nunc citati." [The citation from Pandectarius now follows which I have quoted above]. *i. e.*, "There is also [besides the clove-pink] another herb [Tragopogon pratensis? or Pallenis?] found [in Italy; which is called also Garyophyllon], and which is called also *Filius ante patrem* or *Oculus Christi* or *Oculus Consulis*, as the herbalists please. Its form and character are found given by Matthaeus Sylvaticae. And this plant with us grows in meadows."

‡ *Fide* Jessen, notes to Albert of Lauingen, *De Vegetabilibus*, bk. 6, ch. 547.

many kindred species of Tragopogon and Scorzonera which he must have seen but does not otherwise mention. That he should view them as one * was wholly natural; Linnaeus himself quotes Vaillant, Tournefort, Pontedera, and Boerhaave as agreeing that "the whole genus Tragopogon is one and the same species, but of variations infinite."

Sibthorp found in Grecian lands 21 species which seem to have passed in Anguillara's time † for Tragopogon, at least so far as then observed; against which Anguillara makes perhaps three references, the present one of *δωδεχαμυνῖτις*, and his *Tragopogon, i. e., T. pratensis* ‡ L., and his *Acorus Theophrasti, i. e., Scorzonera laciniata* L. § (if Caspar Bauhin rightly interpreted this). But among ten other Scorzoneras found by Sibthorp, two buphthalmum-like species were so common in Zante as to have received the vernacular name *Scorsonera* || from the inhabitants. Doubtless Anguillara saw them ¶ in Zante; and among them were plants with much-branched stems, others with villous hair on axils or leaves or stems, others with flowers yellow, red, purple or violet, among which he would find all the characters of his *δωδεχαμυνῖτις*.

We may therefore suppose that when Anguillara was writing in 1560 about Aster, he blended two plants which were known to him by the name Filius-ante-patrem; writing his article down to the last clause with *Pallenis* in his mind; but then adding as a Greek synonym one which in reality belonged to *Tragopogon*. That may have come about in this way: Anguillara had probably recorded *δωδεχαμυνῖτις* in notes of perhaps so far back as 1525, as a name he then heard used as equivalent for Filius-ante-patrem, *i. e.*, Tragopogon; and now in 1560 he copies from these notes into his *Parere*, neglecting to observe that his present Filius-ante-patrem was not *Tragopogon* but *Pallenis*.

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* Hortus Cliffort, 382. (*ex libr.* Bu.). 1737.

† Including 2 of *Geropogon* and 3 of *Urospermum* (the *Arnopogon* of Willdenow and Sibthorp).

‡ Constantinople; and pastures about Mt. Haemus, *Sibthorp.*

§ Constantinople; and in the Southern Morea, *Sibthorp.*

|| *Scorzonera*, a name originally Spanish, alluding to the reputation of the plant like ancient Aster Atticus, and many related Compositae, as efficacious against snake bites; from Spanish *scorzo*, a viper; *fide* C. Bauhin.

¶ Species which Sibthorp or others found in Zante and which may therefore have

Anguillara's chief contributions to knowledge of Aster were these:

He had made search between 1520 and 1539 in Grecian lands for a plant to accord with Dioscorides' description of Aster; although he does not seem to have happened upon the true plant, *i. e.*, *Aster Amellus* L., which indeed he may never have seen at all anywhere. Search in Greece for Dioscorides' plants in general had been made before by Simon de Cordo (Simon Januensis) about 1250–1290; and afterward by Pierre Belon (Bellonius) 1549–1551, and later by Tournefort and by Sibthorp.

He held to the correctness of the Greek MSS. as representing Dioscorides' color-character for Aster, retaining the reading ἤ *i. e.*, purple *or* yellow.

He held *Pallenis spinosa* to be the true Aster, his *Aster Atticus verus*; perhaps swerving (unintentionally?) at the end of his Aster article to include also a group of quick-closing Tragopogon species which change from yellow to reddish-purple during blossoming, which may have constituted his δωδεκαμινῖτες or "twelve-minute flower."

His may have been the first identification of Aster Atticus with

been included as part of an original multiform basis of Anguillara's δωδεκαμινῖτις of Zante, include the following:

Tragopogon Cupani Gussone in DC., a handsome smooth purplish species reported from Zante by Margot (Margot and Reuter s *Flore* de l'Ile de Zante, Geneva, 1841).

Tragopogon majus Jacq., found by Sibthorp only in Zante, where he heard the people calling it τοῦ λαγοῦ τὰ γένεια, *i. e.*, rabbit's-beard (literally, "the bearded chin of the hare"); a yellow-flowered smooth species, like the two next.

Scorzonera graminifolia L.; the Σκορσονέρα of Zante, *Sibthorp;* perhaps meaning *Scorzonera buphthalmoides* DC., which Aucher collected later about Aleppo under name of *S. graminifolia* L.

Scorzonera crocifolia, Sibthorp; also called Σκορσονέρα at Zante; also found at Zante by Margot.

Add to these as probably seen by Anguillara and blended with the foregoing,

Scorzonera purpurea L., a rose, purple or blue species, found producing bluish flowers in Crete by Tournefort and by Sibthorp.

Scorzonera Cretica Willd., a ciliate-leaved branching species found in Crete by Tournefort and Sibthorp.

Scorzonera undulata Vahl, a violet species which Tournefort found in Greece.

Scorzonera araneosa Sibthorp, a purple-flowered villous-leaved species of Cyprus.

Scorzonera hirsuta L., a yellow-flowered species with stem and leaves often pilose, which seems to be the *Geropogon hirsutus* of Smith's publication of Sibthorp, found by Sibthorp in Cyprus, and identified by Smith with a reddish-flowered Tragopogon found by Tournefort in Greece, these plants often reddening with age.

Pallenis to gain currency; it was adopted thereafter by many botanists for the hundred years following.*

* The following is a résumé of the application of these mediaeval plant-names: *Filius-ante-patrem*, *Oculus Christi*, *Oculus Consulis*, and *Garyophyllon*. For *Oculus porci* and *Rostrum porcinum* and *Buphthalmum*, see p. 108, etc., under *Hippocrata*.

Plants called Filius-ante-patrem include the following:

1. *Colchicum*, *i. e.*, a crocus, *fide* Avicenna, and *fide* Parkinson, Theatrum Botanicum, Index Lat.

2. "*Herba St. Christophori*," *fide* De Manliis, 171; writing about 1450, and stating of it simply "*Herba St. Christophori* est *Filius-ante-patrem*;" "*Mergenblümlin*, *Mergenrösslin*" are added as synonyms by Brunfels, when printing the preceding, 1531. The name Herb St. Christopher was long applied in Europe to *Geum*, also to *Actaea spicata* L., figured together with the American counterpart by Parkinson, Theatrum Botanicum, 547–9, under the ancient name.

3. *Tragopogon* (*pratensis*, *porrifolius*, etc.) = the *Garyophyllon*, *Oculus Christi* or *Oculus Consulis* of Pandectarius, c. 1313, and of De Manliis, about 1450, the *Flos Campi* of De Cantiprato, 1240, of Bartholomaeus Anglicus, c. 1256, the *Flos Campi* or *Oculus porci* of Albertus Magnus about 1260; the *Fos Campi* or *Veltpluom* or *Oculus porci* of Conrad de Megenberg, 1349; the *Vredels-oghe* and *Fridels-auga* of Hildegardist interpreted by a mediaeval gloss as *Oculus Consulis*.

4. *Dianthus* sp., the *Garyophyllon* of Da Manlio, etc.

5. *Inula* sp., as *I. dysenterica*, *I. salicina*, *I. Britannica*; one or all of these were deemed by Sprengel to be the *Filius-ante-patrem* of Da Manlio; on what grounds is not evident except as the name *Oculus Christi* occurs in Inula. Anguillara could not have meant Inula, for leaf-characters and purple flowers would then be wanting; the Inula which he mentions (*Inula Helenium*), he calls *Helenium Dioscoridis*.

6. *Antipater*, Hermolaus Barbarus, 1492, as cited by Brunfels, 3: 9 (1536), of which both write that some think the plant may be the *Herba impia* of Pliny, 24, 19: but it differs from his description, for, says Barbarus, "Antipater is not hoary, does not heat when rubbed, does not bear *capitula nec thyrsos*." Brunfels makes this plan, Antipater (named in the same sense as *Filius-ante-patrem*) to be "*quasi Cunilaginis minore*" [L. *Cunilago* has been explained as an *Origanum*] and to be called by some *Christophoriana* and *Oculus Consutis*; meaning Geum? or Pallenis?

7. Satyrion, Satyria, an orchid [identified as an Ophrys or Serapias], called Filius-ante-patrem by some, says Brunfels, 3: 10 (1536), "Satyriam sunt qui vocent, quod antea floreat, quam folia producat."

8. Names later than Anguillara.—Epilobium sp., in 1570, the Lysimachia siliquosa of Pena and Lobel, *Adversaria*, 145, and of Parkinson, *Theatrum Bot.* (explained as because of the lengthening pods).

9. Tussilago in 1650, *fide* Bodaeus' Theophrastus, 821, with explanation that it is so called because it produces its flowers before the leaves come up: this is not the *Filius-ante-patrem* of Anguillara, who knew these plants as *Tussilago* and *Petasites*.

10. Herba Impia or *Filago Germanica* of modern botany, of which Gerarde says, page 518, "for the most part those flowers which appear first are the lowest and basest; and those that come after growe higher, as children seeking to overgrowe or overtop their parents (as many wicked children do) for which cause it hath beene called *Herba Impia*, that is, the Wicked Herbe, or Herbe Impious." Pliny, 24: 19.

11. *Inula salicina* L. perhaps was meant by Clusius, who says, in Gerarde's quaint

version, "Aster 10..., another sort, that hath leaves, stalkes, flowers and rootes like the ninth, but never groweth to the height of one cubite. And the mother stalke and flower doth never growe so high as hir children, [but are] much lesse; [like] *Herba Impia* so called, for that the children do overgrowe their parents."

Plants called by the name Oculus Christi included a number of yellow-flowered Compositae, as the following:

1. Tragopogon? or Pallenis? by Matteo Silvatico; (as cited p. 375, n.); probably the same plant was meant by his predecessor Salernus, about 1167, who recommended (see *supra*, p. 224) the *Oculus Christi* for *apostema stomaci* and for *morsus canis*, as the Greeks had recommended Aster.

2. *Pallenis spinosa* Cass. Clusius found the name used for this plant by people of Montpellier in southern France when he was living there in 1553. (*Rariorum plantarum*, bk. IV, 1601.) Dalechamp's *Historia plantarum*, 1587, still so uses it.

3. *Inula Oculus Christi* L., a Grecian and Austrian yellow-flowered species of which J. Bauhin, 1650, said "Oculo Christi similis si non idem" (Hist. pl., 2: 1047) and on which Linnaeus conferred the name specifically; known as ἀγριοσκάροη in Greece, Sibthorp.

4. *Aster montanus flore luteo*, etc., of J. Bauhin, 1650, who says it is the Oculus Christi of many and is the *Oculus Christi minor* of Dalechamp, 1587. Perhaps it represented several species of Inula.

5. *Salvia pratensis* L., the "*Horminum sylvestre*, *Wilde Clarie* or *Oculus Christi*" of Gerarde (Herball, 628. 1597) owed its name he says to its efficacy in clearing the eyes. Parkinson was still describing it under the same names in 1640 (*Theatrum Botanicum*, 59). Culpepper in 1653, after speaking of his "Clary or more properly Clear-eye," adds, "Wild Clary is most blasphemously called Christ's Eye, because it cures diseases of the eye." Salmon, in his New Dispensatory, 1682, had dropped the latter name, retaining Clary and Horminum, and introducing Sclarea.

6. Da Manlio, about 1450, gives the name as a synonym for the second kind of his *Saxifragia*: "Minor vero dicitur, quod est *Oculus Christi*."

7. *Agrostemma Coronaria* L., Lychnis Coronaria of Lonitzer, Dodoens, Cesalpino; and of Pena and Lobel, in 1570, is quoted by the latter, *Adv.* 142, as called not only Rose Campion, in England, as to-day, but also *Christus Ooghen* in Flemish, and *Oeillets Dieu* or more commonly simply *Oeillets*, in French.

8. *Aster Atticus* is cited as once called *Oeil de Christ*, by Foster's *Encycl. Med. Dict.*, N. Y., 1890; perhaps an entry which should have been credited to *Pallenis*.

Plants called Oculus Consulis 1st, = *Tragopogon*, *fide* its interpretation by Jessen as occurring in a MS. of Hildegardis stating that the name *Oculus Consulis* is found there written, in the codex Guelpherbytianus of Hildegardis *Liber subtilitatum*, written about 1180, as a mediaeval marginal synonym for the plant named in her text as *Fridelsouge* or *Fridelsauga* (perhaps pig's-eye, or literally little beast's eye, and allied to Mid. H. G. vihe, beast; or bold-eye, from Mid. H. G. vrevel, boldness?). The plant also appears under the name *Vredels tunghe* or *Vredels oghe* in the *Voeb. simplicium*, and as *Oculus porci* and *Flos campi* in Albertus Magnus' *De vegetabilibus*, bk. VI, c. 404, written before 1256 (see edn. Meyer and Jessen, 547, Berlin, 1867), Albert there remarking "a porcis in pastum effoditur; et habet stipitem parum altum, in cujus supremo est flos rutilans ipso multum, et exsiccatus retinet eundem colorem," see p. 276. See p. 316 for Conrad von Megenberg's eulogy of it as *Oculus porci* or *Veltpluom*.

Oculus Consulis occurs, 2d, in Matthaeus Sylvaticus, before 1317; and 3d, in De Manliis, about 1450; all three occurrences apparently meaning Tragopogon.

Oculus Consulis also occurs, Brunfels, 3 : 9, as a name "used by some for Antipater or Christophoriana, with yellow flowers"; the Herb Christopher? for Geum?

Plants named from Garyophyllon.—Garyophyllon was primarily flower bud of the clove tree; the *Gariofilus* of Macer Floridus, no. 72; so perhaps only, until after Pliny. Early in the Middle Ages it was applied to the clove pink and then to carnations and pinks in general, either in the same form *Garyophyllon* (Pandectarius, de Manliis, etc.) or softened to *Caryophyllus* (Lobel, C. Bauhin, Clusius, etc.) or modified to *Caryophyllaea* (Bock, Matthioli, Dalechamp, Thal) or distinguished by *Flos*, as *Flos Gariofilus* (Cesalpino); other unlike names for various pinks of that period including *Viola barbata* (Dalechamp), *Viola flammea* (Gesner). *Viola Damascena* (Cesalpino), *Superba* (Bock, Lonitzer, Camerarius, Thal), *Betonica* (Fuchs), *Veronica* (Dodoens), *Tunica* (Dalechamp, Bauhin, Haller; and before these, by Manfredus; see below), and *Diosanthus* (Anguillara). C. Bauhin notes that the name Caryophyllus or Caryophyllaea was bestowed from the resemblance of the odor of the flower to the odor of cloves. A similar odor in its root led to the formation of the name Gariofilata for *Geum urbanum* L., perhaps this name first occurs in *Circa instans*, where Plateario remarks it is called so because it has the odor of Gariofili or cloves. *Gariofilata* was the form used by Plateario, the Sinonimia d'Estense, Crescenzi, and Cesalpino; *Garyophyllata* by Da Manlio (and a predecessor, one Leonardus), Hieronymus Brunsvicensis, Brunfels, Bock, Anguillara, Dodoens, and Lonicer; *Caryophyllata* by Matthioli, Clusius, C. Bauhin, etc. Its names of later use had already occurred, *Geum* in Gesner; *Herba Benedicta* (whence *Herb Bennet*) in both Brunfels and Gesner, and *Benedicta* in Hildegardis, about 1160, and in Albertus Magnus. At first it seems to have sometimes included *Dianthus* L. *fide* the *Gariofilata* of about 1200 A. D. in the Sinominia d'Estense.

Garifoli (Sansovino) and Garofano (Matthioli) were common Italian forms used for the carnation in the sixteenth century, also Gelofre, whence Gilliflower, old English for the carnation.

Garyophyllon was likely occasionally to cover Aster also, Matthioli remarking the resemblance of the odor of Aster roots to "Garofano" blossoms. Similar medical uses also united them; the ancient use of Aster for goitre, quinsy or other throat difficulties seems almost repeated in England regarding the *Gelofre* by Dame Juliana Berners in her celebrated "Boke of St. Albans" (on hawking, hunting, and heraldry; printed 1486), when she directs "for the gowte in the throte" of hawks, "take ... Gelofre."

Garyophyllon, if intended to cover Tragopogon in the citation, p. 375, from Silvatico and Da Manlio, may have been applied from the form of the flower head, the obconic swelling beneath that of Tragopogon suggesting that of Dianthus.

Garyophyllon, in the sense of Dianthus, was in old German the *Negel-blümen* (Brunfels, 1531), or nail-head flower, from *negel*, a clove. See *Plateario* for other references. Da Manlio, about 1450, writes of the carnations, "There are certain flowers [pinks] in some parts of Italy which are called *Garyophylli*, because they exhale the odor of those *garyophylli* or cloves that are found in the shops. Some are white, some red. They are found among the Lombards in great quantity. I do not find their name among authors; but I have seen the plant pictured in a book which is written by Manfredus de Monte Imperiali." ("*Librum de simplicibus*, qui in bibl. Parisina latet," said Sprengel of Manfred's work, in 1797; Fabricius knew of a copy in Paris about 1750; Meyer, Pritzel, Seguier and Bumaldus omit Manfred. Da Manlio's reference seems alone to have saved the plant pictures of Manfred from oblivion.)

Manfredus himself called the pinks he pictures by the name of *Tunici*. An echo of

LXXV. MATTHIOLI

All Italian botanists before Cesalpino, 1583, devoted themselves chiefly to the explanation of the classics; and among these botanical commentators the preëminent name was that of Matthioli.* Matthioli's great work, the labor of his whole life,† was his commentary on Dioscorides, of more than 60 editions, most of the Italian and Latin editions appearing in Venice at the press of Valgrisi, 1548 and onward.‡

Of the wide acceptance of this commentary we may judge from the 32,000 copies of an early edition which Valgrisi stated he had printed, and by the translations made into Syrian, Persian, Arabic,

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this name Tunica is heard in Molinaeus' completion of Dalechamp's Hist. pl., 1587, which uses the name *Tunica minima* for a certain small species of pink; and is heard in *Tunica angustifolia*, etc., name given by Haller, to another, *Dianthus Caryophyllus inodorus* L.; and in *Herba tunica*, common name cited for *Dianthus caryophyllus* by C. Bauhin, 1623; the *Herba Tunica* of Gordon the physician (see p. 226), cited 1570 by Pena of Lobel, 143, was a Lychnis.

* Of his pleasure in it he himself says: "Semper me admodum delectaverit medica materia"; *Apologia adversus Amathum*, 6.

† Known as Pierandrea Matthioli, or in Latin as Petrus Andreas Matthiolus, he was born at Siena in 1501, lived with his father, a practising physician in Venice, was educated at Padua, engaged in medical practice at Siena, and in other cities; had been six years or more at Rome in 1527; was fourteen years at Valle Anania in the bishopric of Trent, and twelve years at Görz, whence Ferdinand I. called him to Prague to be court-physician to his son, 1555; afterward he was court-physician at Vienna to the Emperor Maximilian II. Returning to Trent he died there of the plague, in the beginning of 1577.

‡ The first edition of Matthioli's Commentary (with translation of Dioscorides) was in Italian, printed by Bascarini, at Venice, in 1544, in folio, *ex libris* Hoffmann; the first Latin edition was in 1554, *ex libris* Meyer, also a folio, in which figures for the first time appeared, 562 small woodcuts, each about $4\frac{1}{2} \times 2\frac{1}{2}$ inches; representing 504 plants. In the Latin edition of 1560 (*ex libris* Bu.), the small figures of this size are still retained. Matthioli remarks in this, that he had been encouraged by the reception of his Italian commentary "to put forth an enlarged edition, to add to it figures, and to put it in Latin."

Large figures began to appear with the rare folio Bohemian translation, Prague, 1562, and in the rare German translation by Handsch, *ex libris* Meyer, 1563, containing 804 plant-figures. Then followed the first Latin edition to show large figures, 1565 (*ex libris* E. L. Greene), the figures numbering 912 and being the same as in the German translation of 1563 (*fide* Meyer), and probably the same as those in the Bohemian translation of 1562.

But the small figures were introduced again in the 1570 edition (*ex libr.* Meyer) though increased to 1023; diminution in size and value followed, till in a French translation issued at Lyons by Prost in folio in 1655 (*ex libr.* Meyer), the size of the figures went down to $2\frac{1}{2} \times 1\frac{1}{2}$ inches, and many were almost unrecognizable.

Hebrew, etc. The work is really a Natural History of all plants which Matthioli knew.

Matthioli's treatment of Aster, as of other plants, expanded greatly during successive editions. He, like Fuchs, identified Aster Atticus with the plant now known as *Aster Amellus* L. He also established its identification with Vergil's Amellus. Later he admitted a second Aster, his *Aster Atticus alter*, our Pallenis.* His Aster chapter as it appears in the Latin edition of 1560 (*ex libr.* Bu.), the earliest accessible, begins, p. 572–573, with the caption "Aster Atticus, Cap. cxv," and follows with a Latin translation of Dioscorides, omitting the parts not confirmed by occurrence in Pliny. Matthioli renders the color-character "*Purpureum luteumve*," and continues again, "*Tradunt purpureum florem*, si ex aqua bibatur, anginis...opitulari." †

* After his death a whole century, the Kŏnig edn. of Basle, 1674 (*ex. libr.* N. Y. Bot. Garden) contained 4 Aster figures, pp. 817–819, instead of Matthioli's two.

† The remainder forms a commentary, with marginal headings. I translate the more original parts, introducing the marginal headings in italics.

"*Asteris Attici consideratio.* It is called Atticus becauses it occurred more frequently than elsewhere in the Atheniensian field. The plant is to-day known to not a few persons. It grows in rough places, wild lands and valleys. *Serapionis erratum.* Serapio confused it with eryngium, deceived by the likeness of the flowers which in either plant present the figure of a star. In some codices of Dioscorides many statements are found in the chapter on Aster which are believed by learned men to have been subsequent accretions; therefore we have omitted them, especially because Galen, Oribasius, Paulus and Serapio do not quote them. But in the little book concerning plants, of a certain Apuleius, things are said of Aster Atticus which seem almost the same [in impossibility]."

"Stellarum radii noctibus collucent: quare qui naturam stirpis ignorant, inane simulacrum ["una fantasma" in his Italian, 1568] se videre putant. Reperitur a pastoribus pecudum." *Amellus Virgilii.* Aster Atticus is celebrated in *luculentissimis carminibus* by Vergil as the Amellus, which he says is the name for the flower among husbandmen. [Vergil's lines are then quoted but with no citation of evidence on which Matthioli had based this identification of Amellus, which he introduces as if familiarized by some previous identifier to us unknown.]

"Aster Atticus, the fresh plant, says Cratevas, pounded up with old axle grease, is of use when placed on the bites of a mad dog. Swellings of the throat it reduces, and when burned it drives serpents away."

"*Asteris Attici vires ex Galeno.* It is believed to heal buboes, rubbed on or even merely suspended. It is of mixed faculty like the rose. So far Galen.

"But since my *Attica Stella* recalls to mind the plant commonly called Stellaria by more recent speech, and since that plant also is possessed of no ordinary properties, we will not pass it over in silence. *Stellariae historia, et vires.* Stellaria, which some call *Pes-leonis*, and others *Alchimilla*, is a plant which occurs mostly in mountains, especially in meadows, with leaves very like those of Malva, but firmer and crisper,

Matthioli, after often reissuing his Aster chapter in this form of the 1560 Latin edition, enlarged it greatly in his Italian edition of 1568,* where it forms chapter 122, instead of 115. This new description in Italian is much more diffusely written than the Latin.†

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with eight distinct angles, more conspicuous and toothed throughout all around, so that they bear the form of a broadly open star. The stem is slender, half a cubit high, from which go out many branchlets; at their summit are slender pallid flowers in form of stars. It is remarkable for its root, which equals a finger in thickness, and exceeds the palm in length. It springs up in May and flowers in June. It is efficacious in drink, not alone for healing internal ulcers of the viscera, but sinuous ulcers; and it also heals wounds. It is sought by German surgeons, and celebrated with wondrous praises; since they mix it with happy success in vulnerary potions. Its dry powder or its decoction heals enterocele. This same powder is given with wine or by rule of cochlear measure for fifteen or twenty days to women to secure seminal retention and promote conception. Its liquor is given to drink, or is rubbed on externally, to check leucorrhoea. Its daily injection wonderfully constricts these parts, changing them to the virgin state. Taken in drink it is still better. It contracts lax and falling breasts, making them hard and solid, if its tincture is often rubbed on. It is of especial value when mixed with Hypocistis, Equisetum, Stypteria, and dried roses. [In the Italian edition these are "l'Hipocistido, le Rose secche, la Coda di Cavallo herba, and l'Allume."] [An excellent figure of Alchemilla, the lady's mantle, accompanies the detailed description of which the preceding abstract is a summary.] "*Nomina, Aster Atticus* among Greeks and Latins, *Astaraticon* among the Arabs, *Aster attico* among Italians, *Sternkraut* among Germans, *Aspergout e mineur* among the French."

* Matthioli's preface is dated Innspruck, April 1, 1568.

† I add an abstract of the particulars in which it differs, entering the headings in italics as before.

"*Aster Attico, or Inguinale* (translation of Dioscorides follows, changing "purple or yellow" of 1560 to "purple and yellow"; instead of "*anthemidis modo*" of 1560 he now reads "*simile alla camamilla.*") *Aster Attico* and *sua essaminatione. Aster Attico* is known in our common speech as *Stella d'Athene.* ... It has acquired the name of Stella, a star, because when the flowers are expanded, all that which is around it is purple and that within may be seen to be yellow, and the little leaves ("*frondicelle*") of the circumference are similar to the rays which surround a star. Notwithstanding the blame that others cast upon me, contradicting my opinion, the belief still possesses me that the Aster Atticus is the same with that plant which produces flowers yellow in the middle, and throughout the circumference purple, and which identical flower I certainly believe is the same with the Amello of Vergil. Not for their opposition will I so readily recede from my opinion, having, to support it, two examples of antiquity (*due exemplari antichi, i. e.*, the two codices of Dioscorides; see page 149), which reads τὸ πορφυρίζον or τοῦ ἀντους (sic), namely, *in the purple part of the flower.* From which phrase one may argue evidently, that the flowers of the Aster Atticus were of two colors. It makes me believe that in the beginning of this chapter (of Dioscorides), where one reads in the description of the flowers, *or* yellow, one ought to read καὶ, *and*, namely, flowers purple *and* yellow, for which emendation I have the approval of a good herbalist (*buoni semplicisti; i. e.*, Valerius Cordus? who had died

in 1541; it is possible that Cordus' emendation *καί*, published by Egenolph, 1549, did not come to Matthioli's knowledge till after its republication by Rihel in 1561; but it seems more probable that Matthioli now refers to some unprinted contemporary approval, rather than to Cordus' lecture of 30 years before.)

"But I am not so much bound to any purpose as to hold, as by the teeth, to my own opinion in this difficulty. I am not so set as that I am unwilling to mention another plant which is pointed out as the true Aster Attico by a certain learned herbalist. This plant was first sent to me by that most learned and most excellent physician Dr. Johann Crato of Breslau—*Dottor Giouvanni Cratone da Vratislavia*—who was first physician to the Emperor Ferdinand I., and now to Maximilian II. This plant [*Pallenis spinosa?* a figure of which Matthioli introduced as an after thought, by name of *Aster Atticus alter*; but as that plant seems not to grow in Austria, where Crato lived, much less in Silesia, whence he came, Crato must have obtained that species from Clusius or some other source; perhaps, instead, Crato's plant was an Austrian *Inula* or *Pulicaria*] makes its rays in manner of a star (very much so but they are only yellow) and the name of Aster is not inappropriate to it.

"*Errore di Serapione.*—Serapion is in manifest error in his third book in his chapter on Iringo, in confusing Eryngium with Aster, deceived by the resemblance that their stellated flowers present.

"Others make question about the *Aggiunta*, the added spurious part of Dioscorides' chapter. I hold, with the more learned of our time, that this Aggiunta is the addition of some threadbare credulous writer. I the more believe so, because neither Serapion, Galen, Paolo Egineta, nor Oribasio, all imitators of Dioscorides, write any such additional statements; although I have found a part of it in Apuleius in his treatise on herbs, whence it may easily have been transferred [translation of which follows]. Of that Amello, which I have claimed is Aster Atticus, Vergil writes [translation follows]....

"But it is impossible not to marvel at the little discernment of those who make profession of reproving others, and who claim that the Amello of Vergil is none other than the common *Chelidonia minore* [*Ficaria ranunculoides*, the lesser celandine]. *Errore di alcuni arroganci.* Yet Vergil had described Amello as a plant with leaflets which in the manner of a star surround the yellow center. And well he speaks of it '*Sublucet* purpura,' because the purple color of these little leaflets is not equally shining and conspicuous as in the violets, but much more subdued and more clear. But nobody can claim that *Chelidonia minore* is purple. Besides, *Chelidonia minore* is almost always prone upon the earth, nor does it direct itself upward; while the Amello grows directly straight up, as Vergil says.

"Namque uno ingentem tollit de cespite sylvam,

that is, it raises itself up from the sod and grows into a little forest. And this is to be added: that *Chelidonia minore* blooms at the wrong season, for no one sees it but in early spring (*la primavera*); but Amello at the last of summer or beginning of autumn; as Vergil indicates, saying *Tonsis in vallibus*, etc.

"For there is need to expose the poltroonery (*poltroneria*), not to say the malignity (*malignité*), of the critics.

"In short, the Amello is an herb which makes its stalks straight up from the root, growing in the folds of the hills, and woody, of a color which is dark and purplish; then it gives birth to branches almost at its summit. The flowers resemble a star, like our Camamilla, and like Bellis the daisy with the middle yellow and the outside clear purple. The leaves are longish, like an olive-leaf, but much smaller, hairy,

Matthioli's figures of Asters were two, one representing *Aster Amellus*, and later, an additional one of *Pallenis spinosa;* besides that of his *Stellaria* or Alchemilla, introduced into the Aster chapter for comparison, both in the Latin and the Italian editions.

His Aster Amellus figure represents a slightly different type from that of Fuchs, destitute of the cauline rosette of leaves borne by Fuchs' plant, and having the leaves more numerous and more often spatulate. Its earlier form about 4½ by 2½ inches, showed about 11 heads, chiefly with 17 rays, and a root-cluster of very many long fibers, giving rise to about 7 erect stems, the largest bearing 18 or 20 ascending leaves. After issuing the Aster chapter with this one figure of Aster and one of Alchemilla, 1554–1560, in 1563 or probably in 1562 (see page 381), he changed the figures to three, substituting an entirely new though similar figure for his Aster Atticus, adding a figure of *Pallenis spinosa* Cassini for his *Aster Atticus alter* (see page 373), and for the third figure retaining that of Alchemilla. The new figure of Aster Amellus is labelled "*Aster Atticus sive Amellus*," and fills nearly the whole folio page, bearing as Vergil said a forest of stalks, 15 or 20 being represented from a tufted tangle of fibers, similar to those previously figured by him but much more extensive. The rays are still chiefly 17, the heads are about ⅝ inch broad.

Matthioli as a controversialist had not only made himself unpleasantly conspicuous in his Italian edition of 1568 (as indicated by quotations on Aster, pp. 383–4, in which he had turned common scold), but had first begun to dip his pen in gall some ten years before, especially against Amatus and against Gesner in 1558. His edition of 1565 shows him a very spitfire in disposition, de-

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inclining to be dark, and bitterish; those on the branches are much smaller. Its root is divided into many parts, of a not unpleasant odor, an odor like that of a Garofano, a clove-gilliflower [clove-pink]. It flowers at the beginning of autumn or at the end of summer, and after flowering it becomes woolly, making its seed just like that of an Endive.

"Dioscorides, from Cratevas Herbarius, says, 'pestle it green with hog's-grease, against the bite of a mad dog, and equally for tumors of the goitre. When its fumes arise they drive away serpents.'

"*Astere Attico scritto da Galeno.* Galen says...[translation of Galen follows]:

"Stellaria," etc. Others find the Stella di Athene recall to mind the common Stellaria, which some call Piede de Leone, and others Alchimidilla. [The remainder is the same as in the Latin editions, summarized p. 382.]

voting his prolix preface "*contra obtrectatores*" to calling his critics opprobious names, "*asinos, blateronos, impostores,*" * and a whole catalog of terms deemed by him appropriate for men of what he calls "that diabolic faction." He remarks that his commentary had now for about twenty years met with great praise throughout all Europe and in other parts of the globe except chiefly in Italy. He then proceeds to inveigh against all who had ever differed from him, as against Amatus, Maranta, Gesner,† and Guilandini,‡ and especially against Anguillara, finally resulting in driving that noble and true student of nature out of his seat in the University of Padua, merely on account, it appears, of two brief remarks in Anguillara's *Parere*, respectfully correcting errors of Matthioli regarding *Lycium* and *Aconitum*. Furthermore, Anguillara had, without consulting Matthioli, independently interpreted many plants of the ancients in different manner from Matthioli, and that Matthioli could not brook.

In fact, Matthioli assumed to be, as Meyer remarks, "dictator of the knowledge of the ancients." It became positively dangerous to suggest that he was not infallible. A sad example was that of Amatus Lusitanus,§ another acute commentator on Dioscorides.

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* Many more are quoted by Meyer, 4: 376.

† Matthioli, a man "*contradictionis impatientissimus*, had attacked Gesner with contumely" in his second (Latin, 1558) edition, one result of which was Gesner's prompt rejoinder, 1558, in his "Liber de Aconito." See "*Vita Gesneri*," in Schmiedel's Gesner, xxiii.

‡ Melchior Guilandinus or Wieland, born in Prussia, it is said in Königsberg; early betook himself to Italy, and especially Sicily; by aid of "a Venetian patron, the esteemed professor of anatomy and surgery at Padua, Gabriele Falloppio," he journeyed 1558–1560 through Greece, Syria and Egypt; while returning was made captive by the Moors; was redeemed by Fallopius who secured his establishment 1561 at Padua as overseer of the botanical garden and as *Lector simplicium*. He died there, 1589, aged 70. An *Epistola Melchioris Guilandini Borussi* (of Melchior Wieland the Prussian) was published at Basle, 1557, together with one by Gesner, both containing description of new plants. Like Anguillara, he roused the bitter hatred of Matthioli, publishing at Padua, in 1558, his *Thesion*, a pamphlet directed against certain of Matthioli's identifications, and among others, that of Amellus, of which Guilandini asserted "*Aster Atticus Amellus non est*," see p. 383. Matthioli followed in rebuttal, 1562, with a thirty-page attack entitled "*Adversus* viginti problemata Melchioris Guilandini disputatio," printed at Pavia by Ulmus, 1562, and again at Venice by Valgrisi, 1563.

§ Amatus Lusitanus or Joam R. Amato, who wrote at first under his name of Juan Rodriques de Castelblanco, a Portuguese philologist and botanist, believed to have been born at Lisbon, of Jewish parents, exiled from Spain in 1492, and later adopting Chris-

As long before as 1553, Amatus had been scented by Matthioli as a dangerous rival. At that time, when Amatus' "*Enarrationes*" on Dioscorides first appeared, letters kept coming to Matthioli, as Matthioli claims,* complaining of the "incredible intemperance of one Amathus † of Portugal." And now that edition after edition of Amatus had come out in successive years, and finally one, in 1558, which was larger even than Matthioli's own, the rage of Matthioli burst out in fury, and he charged Amatus as heretic and as "semihebraeus," so increasing the activity of the Inquisition against Amatus that he "was hunted from place to place," says Meyer, "like a wild beast."‡

This enlarged edition of Amatus, published at Leyden, in 1558, an octavo of 807 pages, was supplemented by notes by Robertus Constantinus, and by figures from Fuchs, Dalechamps and others. Matthioli quickly issued, in 1558 *fide* Trew, from the house of his usual publisher Valgrisi at Venice, an attack upon Amatus which he entitled "*Apologia* adversus Amathum Lusitanum," following it with his "*Censura* in Amathi Lusitani enarrationes."§

Among the Compositae treated is "Helenium," *i. e.*, elecampane, concerning which, page 10, Matthioli quotes with scorn Amatus's very apt discrimination between Pliny's bitter Helenium and his sweet lentisk-leaved spreading Helenium. Because Mat-

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...ity. He travelled through France, the Netherlands, Germany and Italy; published ...ments on Dioscorides at Antwerp, 1536 (very rare); was court physician in Poland; ...d published his full commentary on Dioscorides at Venice in 1553, one Walter Scott ...ing printer ("apud Gualterum Scotum"); again at Strasburg at Rihel's famous ..., 1554, and at Venice at that of Zilettus, 1557. The new edition of 1558 was ...tly improved, more than a half larger, and with the addition of figures.

* *Apologia adversus Amathum*, 6.

† Matthioli pertinaciously calls Amatus *Amathus* "the simpleton," instead of *Amatus*, "the beloved."

‡ Amatus fled to Ancona, losing in his flight the MS. of his Latin translation he had ...d in hand from a Hebrew version of Avicenna. To his translation he was adding a ...mentary. He had also made a translation of Eutropius into Spanish. Morejon ...s that his flight was first to Ferrara, then Venice, then Ancona, then Pesaro; finding ...rest in Christendom he finally found security under the Moslems in Salonica among ...Jewish colony with which he identified himself, and where he wrote his "*Curationum ...rmalium centuriae septem.*"

§ My copy of these counterblasts, Valgrisi, Venice, 1559, the two printed together ...e uniform pagination, 46 pages, considers 121 different plants over which Matthioli ...d do battle.

thioli had confused the two, Amatus had said of him, "Matthiol ... duplici errore hallucineretur." Matthioli answering ascrib his apparent error as "per Typographum." Other grounds difference were the identification of Artemisia, Matricaria a Cotula; and, page 43, of Chrysanthemum, which Amatus ha deemed to be the Calendula or marigold, the Caltha of Greec and Rome, some manuscripts of Dioscorides reading Caltha i place of Chrysanthemum. Matthioli observes that if Amatus ha like Matthioli "varia Dioscoridis exemplaria habuisset ad manus, and especially those "learnedly restored," he would have fou χαλκὰς written, not κάλθα.

LXXVI. JOACHIM CAMERARIUS

In Germany the heir to Matthioli—by use of his text—and th heir to Gesner, by use of his figures, was Joachim Camerarius * th younger, author of the celebrated Camerarius' *Kreuterbuch*, 1590 and many subsequent editions.

Joachim Camerarius the elder, was a philologist, born in Ba berg, Bavaria, 1500; was educated at Leipsic; and died there 1574; is known as the biographer and editor of Melancthon; b not as a botanist.

Joachim Camerarius the younger, 1534–1598, the herbali and the "esteemed physician of Nuremberg," had usually Feye bend of Frankfort as his publisher, and demands our pres thought chiefly in connection with three † works as follows:

1. Camerarius' "*De plantis Epitome*," Frankfort, 1586 (*ex bi* Columbia), based on Matthioli; contained 4 figures of Ast (as interpreted in Schmiedel's index of plant figures of Ges and Camerarius ‡); one of which was an early figure of *Ast*

* Camerarius was several times an honored name in early German bot Besides the elder and younger Joachim Camerarius, there was the Tubingen famil century later, of which was the famed Rudolf Jakob Camerarius, 1665–1721, born died in Tübingen, Wurtemberg; physician and botanist, the author, 1694, of famed "*De sexu Plantarum epistola*"; followed by Alexander, Elias and Elias Ru Camerarius, of Tubingen, all of whom published botanical dissertations 1690–1727.

† Besides which he was author of "*Opuscula...de re rustica*," Nuremberg, 15 53 foll., enlarged 1500 to 239 p.; and of *Symbolorum...Centuria*," Nuremberg, 1 110 foll. with 100 elegant wood cuts, and in new editions as late as 1697.

‡ Schmiedel's "*Index* Figurarum Conr. Gesneri et Joach. Camerarii," 64 Gesner's *Opera Botanica*, *Pars* I, Nuremberg, 1751; *ex libr.* Bu.).

Alpinus L., then under the name *Aster Atticus caeruleus alpinus*, showing leaf, floret and fruit separately, and showing a globular villous swelling just above the root, developing clustered leaves; "*hirsuta vesicula quae adnasci solet*," says Camerarius of this swelling and fascicle; it is a strong example of that suppression of internodes which is so very common in asters, with or without bulbous enlargement. Fuchs' figure of *Aster Amellus* L., 1542, had shown the beginning of rosette formation of this kind.

Camerarius' three other Aster figures include two of Aster Atticus, retained from Matthioli (see p. 385) and one of some congener labelled by Camerarius "*Aster Atticus luteus*," *fide* Schmiedel, or in copy *ex bibl.* Columbia, "*Aster flore luteo, Sternkraut mit gelden Blumen, Alpe.*" This was deemed by C. Bauhin to be his *Aster luteus radice odora;* which is *Inula odora* L.

2. Camerarius' *Hortus medicus et philosophicus*, the title adding "with many new figures, and remarks on habitats, cultivation and plant philology"—Frankfort, 1588 (*ex libr.* Greene). An appendix of "56 new figures" is usually added. Three Asters are described, p. 23, under these names; *Aster Atticus* flore coeruleo;

Aster Atticus luteus, latifolius et angustifolius (= *Pallenis spinosa* Cass.);

Aster Atticus repens Clusii (= *Buphthalmum maritimum* L.).

Of the first mentioned, *Aster Amellus* L., Camerarius remarks: "in Franconia ad Rhenum copiose proveniens. Ejus duas habemus differentias; qui maturius floret minus alte assurgit quam qui serius."

3. Camerarius' *Kreuterbuch*, a translation of Matthioli into German, with many additions; Frankfort, 1590, folio, 465 foll.; reprinted 1598, 1600, 1611. Seven Aster figures * are given, one

* These seven Aster figures of Camerarius continued to reappear, all or all but one, in works based on Camerarius for the next 150 years; as the following:

Becher's *Paradisus Medicinalis*, Ulm, 1662; being the second part "Phytologia," or "*Kraeuterbuch*" of the German natural history in four books of this name *Paradisus*, which claims to treat of "all the animals, plants and minerals known to the Salernitan school," and to contain over 1200 figures; by Jn. Joachim Becher of Speyer.

Verzascha's "*Kraeuterbuch*," Basle, 1678; a German translation of Matthioli's *Compendium*, by Bernard Verzascha; with figures of Camerarius throughout.

Zwinger's *Theatrum Botanicum;* Basle, 1696; 995 p.; *ex bibl.* N. Y. Bot. Garden. It is an enlarged edition of Verzascha, in German, by Theodor Zwinger.

Zwinger's *Theatrum Botanicum;* new edition, in German, by Friedrich Zwinger, son of the preceding; enlarged to 1216 p.; Basle, 1744, folio.

of "*Aster Atticus, Bubonium, Inguinalis*" (= *Aster Amellus* L.), Aster Atticus *secundus*, Aster alius *flore luteo*, Aster Atticus *luteus*, Aster Atticus *peregrinus*, Aster Atticus *caeruleus alpinus* and Aster Atticus *minor*.

Of these, all after the first (= *Aster Amellus* L.) were yellow-flowered species, chiefly of Buphthalmum; except the two last, which represent *Aster alpinus* L.

LAST APPEARANCES OF MONOTYPIC ASTER

RIVIUS TO EHRHART, MORANDI AND QUINCY, 1543-1783

LXXVII. RIVIUS

In 1543 began the series of editions of Dioscorides from the celebrated printing house of Egenolph * in Frankfort, the inception of which according to Meyer rested with Egenolph himself, "who called to his aid Walter Hermann Ryff, a physician born in Strasburg but living in Mainz." Ryff styles himself a disciple of Brunfels, whom he calls "*mihi olim praeceptor charissimus.*" Ryff made up his edition of Dioscorides by the use of Ruellius' Latin translation, to which Egenolph added small figures reduced from Fuchs' Historia of 1542, an act of literary piracy which was cause of bitter controversy † but without legal redress. Ryff added

* Christian Egenolph, the Frankfort publisher, had printed in 1533 the German *Gart der Gesundheit*, edited by the Frankfort city-physician, Eucharius Rhodion or Röslin, and with new figures mostly from nature and mostly very small; publishing with it the *Distillierbuch* of Hieronymus Braunschwig with about 200 figures; and issuing two other editions of this later; see p. 322.

† Fuchs had already begun, in 1542, a controversy with Egenolph, blaming him for what he called "crass errors" in Eucharius Rhodion's work of 1533. Now the boldness of Ryff and Egenolph in appropriating his figures roused Fuchs to a pitch of fury, partly relieved by excoriations which he soon visited upon both; upon Rivius now and in the year following upon Egenolph. Rivius' original dedication was written in Sept., 1543, at Frankfort, and on the 12th of Feb., 1544, Fuchs finished at Tubingen the preface to his answer or *Apologia*, loading even the title with invective, calling Rivius malicious, and *veteratoris pessimus*, the Latin title (see *Pritzel*, No. 3433) explaining that his object was "to show how in the false fabric woven round the text of Dioscorides and recently issued from the printing house of Egenolph, many, in fact nearly all, of the figures of plants had been meanly stolen from those figures cut for Fuchs' own commentary," the "*De stirpium historia.*"

This *Apologia* is an octavo of 11 leaves, printed by Isengrin at Basle, 1544; a

notes which were also only in part his own, large portions being taken verbatim from Fuchs. The figures number 595. The figure of Aster Atticus was itself such a reduction of Fuchs' large original, of 1542. This reduction was quickly reproduced by Fuchs' own printers in the smaller editions of Fuchs' Historia, as of 1545 (*ex bibl.* Colu.) and 1551 (*ex libr.* Bu.). Ryff's figure of Aster, 1543, was about 4½ × 2 inches, with about 5 heads; in my own copy uncolored; in that of Prof. E. L. Greene, the figures had been all rudely hand-colored, the Aster rays being a purplish violet around a yellow disk.*

Comparing the text of Rivius' notes on Aster to observe his slight changes from Fuchs, we find that Rivius' first section, his "*Nomina*," is different; it reads as follows:

"Graece *ἀστὴρ ἀττικὸς, βουβώνιον.* Latiné, aster Atticus, inguinalis. Officinis inusitata. Germanis Sternkraut, Klein megerkraut. Gallis Aspergoutte menue dicitur."

Rivius' *Explicatio* which follows, seven lines, is almost word for word that of Fuchs, regarding the source of the names, from "Asteris nomen" to "dicta est"; then Rivius adds "Germanis *Bruchkrautt*, qui ad herniam puerorum utuntur."

Fuchs' "*Forma*" is then almost entirely omitted, Rivius continuing with:

"Flores fert, aut luteos aut purpureos."

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copy is in the Dresden library. Fuchs' second attack, on Egenolph 1545, was a similar brochure, "*Responsio*" of Fuchs against "the mendacious calumnies, unworthy of a Christian man, uttered by that Christianus Egenolphus," etc.; who buying up every copy of the pamphlet, Fuchs was out with another issue in Aug., 1545.

Cornarius, praised by Rivius, meanwhile took up the side of Rivius in this controversy with Fuchs and published in March, 1545, at Egenolph's house in Frankfort, a little pamphlet of 19 leaves attacking Fuchs by name, styling the pamphlet "*Vulpecula excoriata.*" Fuchs responded in a similar pamphlet "*Cornarrius furens*" (Basle, 1545); it is to be observed that the only copy known (in *bibl.* Vienna) breaks off at the word *stultitia*. Cornarius quickly replied in another pamphlet, Aug., 1545, "*Nitra ac Brabyla pro Vulpecula*," etc., adding in the title itself that the nitre was to be administered by the Marburg professor, Cornarius, to the Tubingen professor, Fuchs. Once more Cornarius amused himself with a third squib, purporting to give the end of Fuchs, "*Vulpecula Catastrophe*" (Egenolph, 1546) and issued his three diatribes together as "*Fuchseides III.*" We regret that this acute commentator on Dioscorides (see p. 339) should have spent his last years in raising such unworthy monuments to his own memory.

* The 1543 edition of Ryff seems rare, at least Meyer complains that he could not obtain a copy, though he did of the rare editions of 1545 and 1549: in which last Ryff's name appears changed to Rivius, and the figures increased to 786 (*ex bibl.* Colu.).

Rivius then repeats what Fuchs stated under the heads *Locus*, *Tempus* and *Temperamentum*, nearly verbatim, and there ends; omitting Fuchs' "Vires," as that would have repeated the properties Rivius had already stated in Dioscorides' text on the same page.

LXXVIII. JOHN LONITZER

Johannes Lonicerus, the renowned philologist and theologian, professor in Marburg till about 1557, was, like his son Adam, a botanical writer as well as classicist.

His Latin translation of Nicander with Scholia, was printed by Soter at Cologne, 1531. Another work followed, his *Scholia on Dioscorides*, based on Marcellus Vergilius' translation. This work, printed by Egenolph, bears the imprint "Marburg, Aug. 1543," with its own separate pagination, but bound in * with the *Annotations* of Ryff on Dioscorides printed by Egenolph at Frankfort, and prefaced in Sept. of the same year.—Lonicerus' notes, fol. 67, on Aster Atticus, Bk. IV., C. 115, are noteworthy only in their names. He heads them "De Astere Attico, sive inguinali herba." He, or Egenolph, uses two marginal headings, "Asteris Attici vocabula," and "Stellae Atticae vires." His notes are as follows:

"Aster Atticus, id est, stella Attica, asteriscus, id est, stellula, asterion, id est, stellula, bubonion, id est, inguinalis. Hyophthalmon, id est, suillus oculus. Rathibis barbarum est, a foliolis stellae similibus nomen huic herbae est inditum stellaria. Germanice Sternkraut, Galenus Astera Atticum, sunt qui bubonium, id est, inguinalem nominent, quod non solum emplastri modo apposita haec herba inguina sanet, verumetiam alligata iisdem medeatur."

LXXIX. ADAM LONITZER

Adam, son of John Lonitzer, born in Marburg 1528, studied medicine at Mentz 1551, obtaining his doctorate there 1553, and marrying on the same day the daughter of Egenolph. After holding a professorship of medicine at Mentz he returned to Frankfort to live with Egenolph, where he died 1586. His principal † work is his *Kreuterbuch*, 1557, in German, with 708 figures (*ex libr.* Bu.), which repeated on folio 177, the figured Aster

* So at least in my own copy and that of Prof. E. L. Greene.

† Preceded 1551 and 1555 by his "*Naturalis Historia.*"

Atticus reduced from Fuchs. The chapter on Aster Atticus is his "cap. 83," headed "*Schartenblumen* oder Sternkraut, Latine Aster Atticus," and adds nothing, but repeats the old story of its flowers shining in the night till "they frighten men who think they see the devil"; and adds the uses connected with the name *bubonion*.

A second edition, 1560 (*ex libr.* Meyer), increased the figures to 820; and in 1565 a Latin edition appeared. No similar work reached so many editions; five followed his death before 1616. Its value, says Meyer, is as in all Egenolph's publications, very unequal; some figures were from nature, some from Bock, Fuchs and others. He was no more a plant observer than was Ryff, but he had more learning. His work is derived from Rhodion, from the Distillierbuch, from Crescenzi, and with a large addition from himself.

LXXX. UFFENBACH

Although belonging to a date beyond the limits set for this sketch of Aster history, in one sense Uffenbach, Durante, Ehrhart, Salmon, Quincy and Morandi belonged strictly to the subject, for they form a series which continued, 1585–1783,—or really from Johann von Cuba, 1485,—to present essentially a monotypic Aster down to a time two centuries beyond Clusius. A few words, therefore, for their work; considered at this place, because of the similarity of their series to that of Camerarius, Becher, Verzascha and Zwinger, 1586–1744.

Peter Uffenbach, a Frankfort physician from Wetzlar who had studied in Italy, of whose personality little is known, but who was called "*Chirurgus*," and "ein beruhmter Medicus," was the translator into German in 1609 of the Italian herbal of Castor Durante, a work which had been very popular in Italy. Uffenbach's translation appeared at Frankfort, in quarto, by name of "*Hortulus Sanitatis*," or "*Gaertlein der Gesundheit*, in which all plants are briefly described." It is generally supposed to be a translation of Durante's *Erbario* of 1585, though Haller suggests that it may be from the earlier work of Durante of 1565. Uffenbach figures the one usual Aster in it, under the name "*Aster Atticus vulgaris*."

Uffenbach, after the death of Adam Lonitzer, edited new editions of Lonitzer's Kreuterbuch, 1616 and 1630. Trew says that Uffen-

bach's part consisted in the explanation and correction of certain inappropriate figures.

Uffenbach died in 1635,* but further editions under his name kept appearing, at Frankfort in 1650, 1679, 1713, at Ulm in 1703, 1713, 1737, 1765, 1776, and at Augsburg 1783. These, beginning 1737, bore also a long title, adding the name of Balthazar Ehrhart as reviser, though Meyer claims that his work was not evident beyond the title. Ehrhart died July, 1756, pronounced by Meyer unskilful in botany as a science, but to be remembered as a plant collector, especially in the Alps, and notable because he was first to put up collections of plants for sale.

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*Peter Uffenbach also edited, 2d, a revised edition, 1610, of the German Dioscorides ("Dioscorides, Kreuterbuch durch Io. Dantzium verdeutschet v. n. Petro Uffenbachi aufs neu überschen, Frankfort, 1610"; folio; *ex. bibl.* Z. C. Uffenbach).

He was author, 3d, of Comments *de re rustica*, included by J. M. Gesner in the *Scriptores rei rusticae*, 1735; being the last and 20th of Gesner's series of post-classical annotators beginning with Crescenzi.

4th, among his medical works, his *Pantheum medicinae selectum*, 1603 (*fide* Z. C. Uffenbach's *Vita* by Schelhorn, Ulm, 1753).

5th, "Petri Uffenbachii *Thesaurus Chirurgia*, continens praestantissimorum Auctorum Opera Chirurgica," Frankfort, 1610 (*ex. bibl.* Z. C. Uffenbach).

To the same ancient family, ennobled by the Emperor Rudolf II., belonged the series of learned men of Frankfort, including Peter Uffenbach's contemporary Achillez Uffenbach, the latter's grandson John Christopher von Uffenbach ("counsellor, 1683, a learned man of the reformed faith") whose sons Zacharia and John, also counsellors of Frankfort, became distinguished as litterateurs, musicians and collectors, of whom John Frederick ab Uffenbach, 1687–1769, a collector of art objects, was author of religious songs, *Die Nachtfolge Christi*, 1726, etc.; the elder brother, Zacharia Conrad ab Uffenbach, 1683–1735, burgomaster 1721, was collector of the magnificent Uffenbach library, catalogued by him in the four volumes of his *Bibliotheca Uffenbachiana universalis*, Frankfort, 1729–31, and in his *Bibliotheca manuscripta*, Halle, 1720. This library was dispersed by auction at Frankfort, Mar. 7, 1735 (*fide* its catalogue *ex bibl.* Colu. enumerating perhaps 12,000 books). To the library belonged a copy of the *Bartholomaeus Anglicus* of Basle (now *ex libr.* Bu.); a copy of Vincent de Beauvais' Speculum, listed as "per Io. Mentellin, primum...Artis Typographicae Inventorem. Circa medium saec., XV"; and among dated books, some 187 before 1500, the Serapion of 1479 (and that of 1525), Averroes of 1482, Breydenbach's *Peregrinatio* of 1486, both Latin and German editions, two copies of Koberger's Vergil of 1492, Schonsperger's "*Herbarius*" of 1488 and another of 1492, both with colored figures; also another Bartholomaeus Anglicus, of Strasburg, 1491; etc.

Z. C. Uffenbach carried on a vast correspondence, edited in part by his friend Schelhorn, "*Commercii epistolici* Uffenbachiani" (Ulm, 1753–6, 5 vols.); who also published Uffenbach's "Journeys through Lower Saxony, Holland and England" ("Reisen," Ulm, 1753–4). Other MSS. of Uffenbach remained unprinted, as his "Glossarium germanicum Medii aevi."

So from 1533 to 1783 we may trace the succession of Egenolph's botanical outflow, the text of the *Gart der Gesundheit* as edited by Rhodion in 1533, receiving successive augmentation and revision through the many issues of the *Kreuterbuch.* Meyer remarks that though neither the woodcuts nor the text actually promoted the advancement of knowledge, yet they added vastly to its diffusion and formed for a long time the most trusted and widely used handbook of botany.

LXXXI. CASTOR DURANTE

Castor Durante, compiler of the great Italian herbal, was born at Gualdo near Spoleto, and died at Viterbo in 1590 while court-physician to Pope Sixtus V. He was author of *De Bonitate ... alimentorum,* Pisa, 1565, in Latin, a rare book (its Italian translation, *Il Tesoro della sanita,* Venice, 1586, was often reprinted); and was author of the better known *Herbario nuovo;* in Italian; Rome, 1585 and often afterwards, with translation in Spanish and German. It is alphabetically arranged; each chapter is introduced by the Italian name of the plant, followed by a small woodcut copied from Fuchs or Matthioli and measuring about 3 by 2½ in.;* then follow hexameters on the healing powers of the plant, written by Durante in the manner of Macer Floridus; and then, under separate headings, the "Nomi, Forma, Loco, Tempo, Qualita, Virtu."

The hexameters on Aster, p. 53, are as follows:

Atticus Aster habet turgentia discutiendi
Guttura vim, pueris morbos pellitque caducos;
Morsibus atque canis rabiosi imponitur herba haec,
Serpentesque, incensa fugat; lachrimisque oculorum.
Ardenti et stomacho prodest, sedique cadenti,
Inguinibusque simul, coxendicis atque dolori.

Then follow the *Nomi,* among which are given "Ital. *Aster Attico, Amello;* Franc, petitte Espargoutte, *Amello de virgine* [*Vergile* intended], *inguinale.* The description which follows, uses for it also the Italian name *Stella d'Atene.*

* Meyer, whose copy was of the folio edition of Venice in 1617, credits *all* the figures to Fuchs; but in the first edition of 1585 (*fide* my own copy), and in that of Venice of 1636 (*ex libr.* E. L. Greene), the Aster Atticus figure was not that of Fuchs, but modified from Matthioli. Changes in editions are slight, this figure occurring on p. 53 in 1585, p. 57 in 1636.

The description is derived from Matthioli chiefly; states that the leaves are like those of the olive but smaller; the taste sharp and bitterish; the root capillary and of a not unpleasant odor: "and adds that another Aster has the flowers wholly yellow," referring to Pallenis, the *Aster Atticus alter* of Matthioli.

Durante follows with the virtues recounted by Dioscorides, not omitting those derived from Cratevas, and the uses as an amulet.

LXXXII. MORANDI

Giambattista Morandi, a later Italian writer on materia medica, was author of a *Historia botanica practica*, Milan, 1744, which treats (*fide* copy *ex libr.* Greene) only two Asters; and one of them is the elecampane; the author still holding so primitive and crude a conception as to include *Inula Helenium* in Aster. His other Aster is "Aster Atticus," which he describes, p. 27, saying "its flowers are like a little *Calendula*, its petals are many and violet purple, it blooms in August, grows in a variety of places, and is called *Inguinalis* and *Inguinaria*." He quotes the medical uses given by Dioscorides and Galen, but adds nothing new.

His edition of 1761 (*ex bibl.* Columbia) reprints the above, p. 27, but separates elecampane from Aster.

LXXXIII. PARKINSON

Parkinson's celebrated *Paradisus*, London, 1629, mentions Aster Atticus as usual, p. 299; treats it as with yellow and purple flowers, as if of two species; agrees with Matthioli that the purple is the true Aster Atticus and is the Amellus; and cites its occasional name in England as the Purple Marigold,—"because it is so like unto one in form." Of its virtues Parkinson says, "they are held to be good for the biting of a mad dogge, ... as also for swolne throats; likewise for botches that happen in the groine."

On p. 516 the Jerusalem artichoke, potato and sunflower occur served up together under the name Aster Peruanus, Parkinson quoting from Fabio Colonna in the second part of his Phytobasanos 1616, the "Flos Solis Farnesianus* sive Aster Peruanus tuberosus." Parkinson's figure seems based on Jerusalem Arti-

* No Asters appear in the "*Hortus Farnesianus*," of Tobia Aldino Cesenate, Rome, 1725.

choke, but he adds that it is called "battatas de Canada, Potatoes of Canada or Artichokes of Jerusalem."

Parkinson's later *Theatrum Botanicum*, 1640, belongs to a different sphere; mentioning 20 Asters, pages 128–132, of which four are yellow-flowered American allies, and two others are American but of doubtful identity. Parkinson in 1640 was now following Lobel in figuring *Pallenis* as true Aster Atticus, although remarking that some were latterly claiming "the *purple marigold*" as the true original.

LXXXIV. SALMON

William Salmon, "Professor of Physick," and London herbalist, dwelling at "the Blew Ball in Shoo-Lane," was author of the "*Pharmacopoeia Londinensis;* or the New London Dispensatory in VI books. Translated into English for the Publick Good, and Fitted to the whole Art of Healing," * London, 1677; 2d edn., 1682. One Aster, Aster Atticus, appears among the 737 plants treated, forming chapter 64, p. 34, as follows: †

64, *Aster Atticus*, Stellaria, Ἀστὴρ Ἀττικὸς, Starwort; it is called also Hypothalmon (*sic*) and Asterion; temperate and dry in 1°. It is good against the Quinsie and the Epilepsie in children, chiefly the flowers. Externally the leaves in a Cataplasm, maturates and suppurates botches, Imposthumes and venerious buboes." ‡

LXXXV. QUINCY

John Quincy, last English writer to present Aster in monotypic form, was a physician who died in London in 1723. He was the author of *Medical Epistles*, 1719, and in 1721, of the "*Dispensatory* § of the Royal College of Physicians," which still retained

* Dedicated to King Charles II, called by Salmon "the miraculous Wonder of this Age," whom he entreats "Become, Sir! the patron of our Lives!...In order to the performance of this, Your Majesties Countenance alone is enough: Your Benign Smile will add Life to these Undertakings."

† I quote from the 2d edn., 1682 (*ex libr.* Bu.). This is Salmon's translation, as he says, from the Latin of "the London Dispensatory, lately Reformed by the Fellows now living, of the College of Physicians."

‡ Salmon was also author of an herbal, his "Botanologia; the English Herbal," London, 1710–11, folio, 2 vols. His descriptions, being confined to English plants, include no Aster, though several species are so catalogued in the index.

§ From this Dispensatory developed the *Pharmacopeia officinalis* in four volumes, London, 1739, which after translation into German as the "*Lexicon physico-medicum*," 1787, served as basis of the *Medical Dictionary* of Hooper, etc.

Aster Atticus among its medical plants, with the virtues ascribed to it by the ancients. So tenacious has been the hold of Dioscorides upon the race.

CLUSIUS AND HIS COUNTRYMEN

LXXXVI. DODOENS

Rembert Dodoens or Dodonaeus Mechliniensis,—oldest of the three Antwerp botanists, friends and collaborators, Dodoens, Clusius and Lobel,—was born in 1517 at Malines (Mecheln or Mechlin) where his father Dodo Dodoens, a Frieslander born, was a merchant. Early a student of the University of Louvain, he was licensed in medicine in his 18th year; in 1535–1546 he sought broader education in medicine in many German, French and Italian universities, and finally at Basle; in 1548 was made city physician of Malines; wrote this year his "*Isagoge cosmographica*," and began to write in Flemish the *History of Plants* or *Cruydeboeck* which occupied most of the rest of his life. Later he was physician to King Philip II at Madrid, in 1574 to Maximilian II at Vienna, 1576–9 to his successor at Vienna, Rudolf II; there meeting with his friend and fellow-countrymen, Clusius, who was in charge, about 1573, of the Royal Garden; and with his old colleague, the famed physician, Crato von Kraftheim, with whom he became unfortunately drawn into controversy.

Returningin 1582 to his native Malines, just then plundered a second time by Spanish troops, he accepted a medical professorship at Leyden; he published the following year at Antwerp his botanical masterpiece, his *Pemptades*, and died in 1586, aged 68. Meyer remarks of him that in his works we find the first flora of the Netherlands; and that he marks an advance toward a classification of plants, of which he himself says in his Pemptades, "de ordine non exigua accessit solicitudo." But the conclusion of Dodoens was that Dioscorides' plan was still the most practicable, to class according to properties, and only secondarily according to form.

Dodoens' *Cruydeboeck*,* his famous Flemish herbal, begun in

* The 4th book of the Cruydeboeck was the first to be printed, 1552, by the name of *De frugum historia*, with figures mostly from Fuchs. Figures for the first three books fol-

1548, partly printed in 1552, completely in 1554, and in second, or properly third edition 1563, contained up to that last date (*ex bibl.* Colu.) but one Aster, page 54; with good figure, derived probably from Fuchs; an abstract, in translation, is as follows:

"*Aster Atticus or Sterrecruyt*

"Names. This plant is in Greek named Aster Atticus and Boubonion; Latin, Aster Atticus, or Inguinalis; in Vergil, Flos Amellus; in high Dutch, Megerkraut, Bruchkraut, Scartenkraut, Sternkraut; in French, Aspergoutte menue.

"Description" following is much as in Fuchs, short and of about twice as much space as the preceding *Nomina.*

In the next Flemish edition of the Cruydt-boeck * which I have been able to compare,† the immense folio of 1608,‡ 1,580 pages besides copious index, Aster is treated in 4 species, in the body of the work, and a supplement is added in which Clusius' and Lobel's Asters are inserted, and reference is made to Tripolium as properly an Aster.

Dodoens' Pemptades § published three Asters in the first edition of 1583 (*ex libr.* E. L. Greene), p. 265–6; *Aster Atticus* (= *A.*

lowed without text, in 1553, by name *Trium priorum...imagines.* When in 1554 the whole Cruydeboeck appeared, printed by Vanderloe in Gothic letters, it formed a folio of 818 pages, with 707 woodcuts; it is one of the rarest books in botanical literature; a copy is in the Royal Libr. of Brussels.

The 2d edn., so-called, 1563, contained 817 figures, 500 of which he remarks are from Fuchs. Other editions followed to 1644; all at Antwerp.

A Latin translation, by Dodoens himself, with 133 new figures, appeared 1565–1576, printed by Plantin, Antwerp.

A French translation, by Clusius, properly a second edition of the original, having many additions from Dodoens' own hand, appeared at Antwerp, 1557, printed by Vanderloe, 584 pp., a rare work, entitled *Histoire des plantes*, its last 35 pages occupied by an original work by Clusius, his *Petit recueil;* see p. 407.

An English translation from the French, by Henry Lyte, by name of "A niewe herball," appeared at Antwerp, 1578, and often afterward; and in England in an abridgement by Wm. Ram, London, 1606, known as "Ram's little Dodeon."

* With the title in this and following editions spelled Cruydt-boeck.

† Sold in N. Y., June 14, 1901.

‡ Not mentioned by Pritzel; C. Bauhin, *Pinax*, under "*Nomina authorum*," refers to it as "prolix" and with thirty-six new figures.

§ Printed by Plantin, at Antwerp, 1583, a folio of 860 pages, with 1105 figures, mostly from the Cruydeboeck. The second edition, also from the Plantin press, 1616, added 12 pages and 19 figures, but was in substance a reprint ("paucis mutatis," *C. Bauhin*).

Amellus L.) with Matthioli's figure; *Aster Atticus supinus* (= *Buphthalmum maritimum* L.), with Clusius' figure; and a third, his "*lutei floris*" of doubtful identity, regarded by C. Bauhin as same as Bauhin's own *Aster Atticus luteus* VII (*Pinax*, 266), perhaps only an expansion of the idea that there must be a yellow species to match the purple one just described; and it may be from this fact, being not found in nature, that Dodoens fails to provide any figure for it. His description for it is rearranged from Pena and Lobel, 1570 (see p. 403), and seems first introduced by Dodoens in 1574 into his Latin translation, *fide* C. Bauhin.

Dodoens then follows with the synonyms for Aster Atticus, which he gives in the main as in the Cruydeboeck, adding two Spanish names, *Bobas* and *Estrellada*, and one French, *Estoille*; omitting "in Vergil Flos Amellus," and saying instead "Putatur et is, qui purpurei est floris, a Virgilio Amellus nuncupati flos," concerning which he then quotes from the Georgics, concluding by adding the properties as given by Galen and then as given by Dioscorides.

The 1616 edition of Dodoens' *Pemptades* (*ex libr.* Bu. and *ex bibl.* N. Y. Bot. Garden) differs in regard to Aster only in the occurrence of the chapter (24) on pages 266–7 or one page forward.

LXXXVII. LOBEL

Matthias de L'Obel, Latinized as Lobelius and Anglicized as Lobel, youngest of the three great botanists of Flanders, was born in Lille (in French Flanders) 1538, studied before 1566 under Rondeletius * at Montpellier, botanized thence through southern France, pursued botanical studies at Narbonne with Peter Pena, then journeyed in upper Italy, Switzerland, Germany and England.† Becoming a practising physician at Antwerp, and then at Delft, he was called by William, Prince of Orange, to be his court physician in 1584; and was later in London, as "Royal Botanographer" to King James I.‡ He died in 1616, aged 78, at Highgate, London, where he had lived for some years with a married daughter.

* G. Rondelet, the French naturalist, 1507–1566; author of "Animadversiones" on drugs, printed by Lobel, 1576.

† According to Pulteney, he was in England in 1570 and there dedicated the (rare) first edition of his *Adversaria* to Queen Elizabeth in that year, finding a sponsor in Lord Zouch, and making additions to Lord Zouch's garden at Hackney.

‡ As appears in his edition of his *Adversaria* in 1605.

Lobel's botanical monuments are two, his *Adversaria* of 1570 and his *Observationes* * of 1576, commonly printed together to form his "*Historia plantarum.*" His first work was the *Stirpium Adversaria nova;* Purfoot's London editions, dedicated to Queen Elizabeth, 1570, 1571, 1572; edition at Antwerp, 1576; then reissued under the changed title *Dilucidae simplicium* at London, 1605,† Leyden 1616, and Frankfort, 1651. Petrus Pena, his instructor at Narbonne, was joint author, according to the title page, his name preceding that of Lobel. There is no other indication of their relative proportion of authorship, except that a peculiar and imperfect Latinity observable here, continues through all of Lobel's works, and seems to indicate that though Pena may have gathered in southern France a large part of the materials, the final elaboration was due to Lobel.‡

The Aster descriptions of Lobel and of Pena are as follows:

1 (*Pallenis spinosa*, Cassini), "Aster sive Stella Attica Monspeliensium, aureo flore," *Adv.*, 147. Translating the Latin, "The name of Attic Star has arisen if not from the flower, at least from the leaflets surrounding that in the manner of a star, as Dioscorides seems to have expressed it; no other plant of to-day can be more fitly so designated than that called Aster Monspelliensium in that place, in the Norbonensian region, a very familiar plant about the margins of meadows and brooks.

"It produces a golden flower in summer, rounded but compressed, nor with as much of swelling roundness as that of Buphthalmum [*Anthemis tinctoria* L.] and Chrysan-

* Lobel's works, written wholly by himself, include,

1. "*Plantarum...Historia*" or "Stirpium Observationes," Antwerp, 1576, 671 p. and over 1,200 figures, mostly from Clusius or Dodoens, whose works were printed chiefly by the same publisher, Plantin.

2. "*Kruydtboeck*," Plantin, Antwerp, 1581, 1306 p; 562 figures, mostly from Clusius; a Flemish translation of his preceding works, but on better paper and with some of the figures improved and larger.

3. "*Plantarum...icones*," Plantin, 1581, the figures of the Kruydtboeck, without text; cited throughout by Linnaeus, in his *Species plantarum.*

4. "*Stirpium illustrationes*," a small posthumous work (without figures) of 211 pages (so Meyer; 170, Pritzel who did not include 41 unnumbered pages), edited by William How, and printed in Latin by Warren at London, 1655, from a rough and half-finished Latin MS., in which Lobel had begun, at instance of Lord Zouch, a comprehensive botanical treatise, but which How charged Parkinson (who had died 1650) with having purloined and withheld. Meyer praises Lobel's preface as the first notice of the fact that "the plants which are found on mountain-tops are found in plains and depressed regions further north."

† The 1570 edn. had 457 p. and 268 figures; the 1576 edn. and 1605 were the same to p. 456, according to Dryander; the 1576 edn. had but little addition, only 471 p. in all; that of 1605 grew to 549 p.

‡ So Meyer surmises, 4 : 158 +.

themum [probably *C. segetum* L. particularly]. The flower is surrounded by five or six narrow mucronate rigid and rather long leaflets, somewhat resembling a *stella marina* [starfish]. The stems are a foot, or three or four feet, hard, hirsute, covered wholly with oblong leaves like those of *Lychnis* or *Verbascum salvifolia tenuior*, pilose, a little rigid, green, tinged with brown. The root is composed of scattered fibers. The juice is astringent, bitterish, not acrid, nor particularly unpleasant. The seed resembles that of Anthemis. It is mature in August, or in September in gardens of France, Belgium or Germany. For it does not occur in the country in those regions. The leaflets of the flowers grow purplish underneath in certain localities; not purplish within as in Tripolium." *

2 (*Inula salicina* L.) (Pena and Lobel's second Aster of 1570). "Aster Italorum luteum fruticosum oleae folio Conisae facie," *Adv.* 147; the name changed by Lobel *Obs.*, 189, margin, to "Aster luteus fruticosus" (so correcting the syntax). Pena and Lobel, *Adv.* 147, say of it "It is very frequent not only in stony and dry places in Italy, but in the province of Narbonne, especially near the ruins of the Roman aqueduct at Nismes, on the road to Avignon at the triple arch bridge called Garrus, and at Boutonnes (Bottonettus), and along the Monspelliac river Lanus at the bridge: [brief description follows]; with leaves of Olea Conisa or of Myrthus major, or rather with habit and flower of Conisa; yellow, and with pappus like Jacea [*Senecio*]. It is of uncertain use. It is uncertain if it can be the Amelus of Virgil. It seems indeed impossible to maintain the opinion that it is the true Amelus or the Aster of Dioscorides."

This plant actually appeared as an Aster as late as Scopoli, 1760, who called it *Aster salicinus* in his *Flora Carniolica*. Linnaeus had called it an Aster in his *Flora Suecica*, 1745; and so many writers before; J. Bauhin and editors, 1650, still referring to it as deemed a kind of Aster Atticus ["quibusdam asteris attici genus," *Hist. pl.*, 2: 1049], by some, though themselves classing it under Conyza; Tabernaemontanus in 1588, calling it *Bubonium luteum*, perpetuated in this other form the idea that it was the Aster Atticus or Bubonium of the ancients. A part of Tabernaemontanus' Bubonium luteum came latter to be separated from this *Aster salicinus*, appearing in Scopoli, 1760, as *Aster Bubonium*, and giving rise to the subgeneric name Bubonium used by De Candolle for this his largest section of Inula in his Prodromus, 1836. Scopoli's *Aster Bubonium* is the *Inula spiraeifolia* L., non Lam., fide DC., but is *Inula squarrosa* L., fide Fl. Deutschland, Hallier's revision, 29: 133.

Lobel, *Obs.* 189, adds to his "*Aster luteus fruticosus*" a variety, without separate name but simply headed "varietas"; remarking that the variety is "in all things the same with the yellow form except that mixed with the yellow flowers purplish ones occur; nor does it turn so to pappus within [*in pappos dehiscentibus*]; in locality and growth it is like *Aster Lunariaefolius Narbonensis* (*Aster acris* L.) but larger. It grows in Provence and about Narbonne and in Lombardy; and in gardens in Belgium." The Bauhins, Tournefort and Linnaeus make no mention of this variety.

* The same plant appears figured, Lobel's Observationes, 188, the figure being substantially that used by Matthioli, 1563, and labelled by him "*Aster Atticus alter*," by Lobel here "*Aster Atticus*," with addition, p. 189, of properties from Dioscorides and Paulus Aegineta, both in Latin translation; and with the usual citation of synonyms, including *Bobas* in Spain, probably derived from Clusius who found it current there in 1564; and *Oculus Christi* at Montpellier, which may have been derived from Lobel's own residence there prior to 1566, or from Clusius who was there 1550–1553, or from Rondelet and Pena who had long resided in that region. To both of these instructors of Lobel may be traced his name for it of "*Aster Monspelliensium*;" Rondelet himself calls it *Aster Atticus* (Lobel, *Obs.*, 664, publishing a posthumous fragment of Rondelet's).

Lobel's figure, *Obs.* 188, intended for this *Aster luteus fruticosus* and labelled *Aster Italorum*, was a mistake, being Matthioli's figure for *Aster Atticus*, and representing *Aster Amellus* L. Misled by this figure, C. Bauhin in 1623 in his *Pinax* enumerated an "Aster Atticus luteus VII" which had no existence in nature, being a composite founded on Pena and Lobel's description of their yellow-flowered *Aster Italorum*, plus Dodoens' imaginary second or (yellow-flowered) *Aster Atticus*, plus Clusius' *Aster Atticus Italorum;* which latter proves to be the purple *Aster Amellus* L.

The first to give a correct interpretation of Pena and Lobel's "Aster Italorum" was Magnol (probably in his *Botanicum Monspeliense* of 1676); *fide* Tournefort, who cleared up the subject in his *Histoire des plantes...de Paris*, 1698, showing how Pena and Lobel, and afterward C. Bauhin, had confused the two wholly different yellow and purple plants.

3. (*Aster acris* L. = *Galatella punctata* DC., and including the *Galatella punctata* of Cassini & Nees) Pena and Lobel's third species, "Aster minor Norbonensium tripolii flore, Lynariae folio medio purpureum," *Adv.* 147, "Aster Lunariaefolius Narbonensis" Lobel, *Obs.* 189, in reference made in another description; figured *Adv.* 147, with description, remarking "This Aster fully satisfies our notion of Dioscorides' Aster and of the Amelus Vergilianus; except that it does not occur here in meadows, but in dry places and stony hills, as an olivetum near Montpellier and another 'ad Castrum novum. The flowers certainly present the figure of little stars, with their many leaflets radiating, golden and purple, glistening with the mingled brilliance of Tripolium [mixto fulgore micantes Tripolii]. For by Dioscorides something purple mixed with yellow is depicted, as is seen when he says, 'florum partem purpuream bubonis presidio esse.' So indeed it is to be rendered, and so doctissimus Marcellus rendered it. In its slender virgate stems, a foot or a foot and a half high from one fibrous sod of root [it resembles Amellus]. Its little oblong leaves, narrower than in the preceding [*Inula salicina*] resemble Lynaria [*Linaria vulgaris* of modern botany and of Bock, Gesner and Cesalpino]. It is similar on the whole but smaller and more slender than Tripolium, which expresses the Amelus Vergilianus still more clearly, both in locality, along streams and meadow borders and more open valleys, and in aspect of flower, leaves and stems, for sometimes it grows strong and purple and its cymes show a beautiful forest of purpled stars among the yellow."

4. (*Inula montana* L.) "Aster montanis [corrected to *montanus*, Obs. 189] duplex praegrandi Helenii flore," *Adv.* 148, figure 149, with the description, "These two plants merit the name of Aster, which, although rarely, in the lofty mountains of the Allobroges and Provence, show a single blossom of shining magnitude. It is almost of the magnitude, color and form of Helenium (*Inula Helenium* L.) on a single stem a cubit high, which is straight and slender, bearing brownish leaves in size like the Aster Italicus (*Inula salicina* L.) and so similar that they are evidently the same [genus of] plants. Succisae, aut Britannicae, Lugdunensis. [Succisa was a name used for Scabiosa by many contemporaries, as Matthioli, Fuchs, and Dodoens; and under the name Succisa this *Inula montana* may have been cultivated in Leyden, and also under the name *Britannica*, later confined to *Inula Britannica* L.)

5. (*Inula montana* L.) "Aster montanus hirsutus," *Adv.* 148, with name in margin misplaced above the description; figured as "[Aster] Alter folio et caule hirsutis," 148; and described: "Another, in height and in flower, is not unlike the preceding, but with stem and leaves hirsute, longer, of the same size and shape as our small Cynoglossum; but with the root less fibrous."

Tabernaemontanus, 1588, distinguished this from the preceding, calling that "Aster montanus luteus *mas*," and this "Aster montanus luteus *femina*." C. Bauhin

also retained them as distinct, but Linnaeus cited both of Bauhin's names as synonyms for his *Inula montana*. Linnaeus, 1762, was still remarking that "in its calyx and its habit it is too close to the Asters."

6. (*Buphthalmum grandiflorum* L.) "Aster conyzoides Gesneri" of *Obs.* 188, where it is figured, "Aster conyzoides. Conyzoides Gesneri" 189, with description, already quoted, p. 361.

7. (*Buphthalmum maritimum* L., later known as *Asteriscus maritimum* Moench.) "Aster atticus supinus clusii," figured by this name *Obs.* 188, and described by the same name, 189, as "A plant which produces numerous rough-bristly stems, spread on the ground, given off from one root; it produces oblong hirsute leaves as of Lychnis or of Stella Attica, numerous and of a deeper green; and a yellow flower as of Buphthalmum or Chrysanthemum. Grows wild in certain places in Castile, according to Clusius."

8. (*Inula dysenterica* L., later known as *Pulicaria dysenterica* Gaertner) "Aster Atticus luteus Fuchsii et perperam calamintha tertia" is printed by Lobel, *Obs.* 187, over the figure of his Conyza media, "familiar plant" as he goes on to say, "in Belgium, France, Italy and Germany." Fuchs (as edn. 1551, p. 427) had by some mistake coupled a figure of Inula dysenterica L. with the name and description of his "Calaminthae tertium genus Galliae Calament aquatic, Mentastro simile."

Lobel's Chief Contribution to Aster-Knowledge

He (including Pena's work with his own) figured and described more species by the name of Aster than any one before him; none of which, however, are now commonly classed under that genus.

His descriptions contain but little borrowed matter, and show close and fond observation of plants in their native habitats,—*studiose observavimus*, he says himself, *Adv.* 123. Throughout the *Adversaria* especially, written nearer to the time when Pena and Lobel were roaming the fields at Narbonne together, their Aster descriptions are redolent of the fresh fields, and are remarkable for their mention of exact localities, in which respect they stand as the pioneers in a new world, previous habitats, even in exact writers like Fuchs or Bock, being usually expressed in terms of nationalities. Valerius Cordus, Anguillara and Clusius had begun, however, to do slightly what Pena and Lobel did very commonly in their *Adversaria;* Lobel's *Observationes*, being composed more of citations from the ancients, gave no such opportunity.

His descriptions of *Aster montanus hirsutus*, etc., were the first for that plant, *Inula montana* L., that are known.

His description and figure of "*Aster Atticus supinus*" appeared in the same year with those of Clusius, but were borrowed from the latter, Clusius' figures being freely loaned to his friends.

His description and figure of "*Aster conyzoides Gesneri*" furnished the starting-point for the further treatment of the plant by botanists, the original by Gesner being to most an unseen rarity.

LXXXVIII. CLUSIUS

Last of the three friends of Flanders we consider Clusius, postponing him till after Dodoens and Lobel because his numerous original publications of Aster make him for that genus the end of one era and the beginning of a new. When he began botanic work in 1550, he found Aster substantially a monotypic genus, and so he published it in 1557; in 1576 he put forth his first new Aster; by 1583 he had altered the aspect of the genus from simple to complex, with his Pannonian species; and when he died in 1609, the genus had been already well tangled by his younger contemporaries.

Clusius' Early Life.—By birth Charles de l'Escluse, he was usually known as Carolus Clusius Atrebatis; *i. e.*, of Arras, his birthplace, Arras in Artois, now in France but then in Flanders, where his Huguenot family were religious exiles from France. Meyer was eager to class him with German botanists, the greater part of his life being spent in the Netherlands or in Germany. Indeed it is a significant fact that since Ruellius at the century's beginning, or since the Huguenot wars had begun to devastate France, almost all botanical work which emanated from men of French descent for the rest of that century was published in the Netherlands, as comparison of the printers of Clusius, Lobel, Dalechamp, Des Moulins, Pena and Rondelet will attest.

Born in March, 1526, Clusius was nine years younger than Dodoens, twelve years older than Lobel; his father was proprietor of an estate in good circumstances and vested with high official dignity. Educated at Ghent and Louvain, in 1548 Clusius was at Marburg, in 1549 he went to Wittenberg to be with Melancthon, in 1550 to Frankfort, Strasburg, Lyons and Montpellier.

Clusius' Life as a Botanist.—At Montpellier he remained three years, 1550–1553, studying under the naturalist Rondelet, and living in his house. Under the influence of Rondelet, who was botanist, physician and ichthyologist, Clusius, who had been a

student of law, turned from jurisprudence and became a student of nature. There he made acquaintance with his "*Aster Atticus legitimus*" (*Pallenis spinosa* Cassini) which he says the people about Montpellier were in the habit of calling *Oculus Christi*; "*Aster Atticus legitimus* was called *Oculus Christi* in the Monspellian land when I was living there," Clusius wrote a half century later. We may fancy the elder and younger plant-lovers talking over its yellow stars and its healing powers as they walked there, Rondelet praising its traditional virtues.*

After three years in Montpellier, Clusius received his license in medicine in 1553 and at once began a botanical journey through the mountains, making observations on plants through a great part of southern France, Savoy and Piedmont. Here may have been his first sight of *Aster Amellus* L. and of *Aster alpinus* L., which he did not describe however till 1583 after seeing them in the Austrian Alps.

At the wish of his father, Clusius returned, by way of Basle, to the Netherlands. Remaining there 1555–1563, he translated into French, with numerous additions made by author and by translator as collaborators, the great Flemish herbal, the Cruydeboeck of Dodoens, finishing it in 1557, under the name "*Histoire des plantes*." †

* Rondelet himself had known the plant as Aster Atticus; for in his fragment "*De Succedaneis*" (edited by Lobel from a MS. of Rondelet and published 1576 at Antwerp as an appendix to his *Observationes*, forming pages 657–671 of Lobel's volume *Plantarum historia*), Rondelet remarks, p. 664, that in place of the plant "Bubonium sive Inguinaria sive Aster Atticus" some physicians use "*Antirrhinum*": and vice versa. "Antirrhinum," still known by that name, had been said by Galen to have "the properties of Bubonium but milder"; as Lobel remarks, *Observationes*, 221. Lobel, in editing this fragment, indicates by marginal insertion of "Rondel," opposite "Aster Atticus," that the text means not the *Aster Atticus* of anybody else, Matthioli for example, but the *Aster Atticus* of Rondelet, *i. e.*, the *Aster Atticus alter* of Matthioli. —It was natural that the Aster Atticus of Rondelet should not be the *Aster Amellus* L., the mountain-loving plant of Matthioli. Presumably there had been a long-current identification of Pallenis with Bubonion and Inguinaria widespread through both southern France and Spain, Rondelet, 1507–1566, knowing it as Bubonion and Clusius finding the Spaniards calling it Bobas when he was travelling in Spain in 1564–5.

† Issued by Jean Loë, Antwerp, 1557, in folio, according to C. Bauhin, Seguier and Haller, with the title, as given by Seguier, 1740, of "*Histoire des plantes de Dodonée*, contenant la description des herbes, leurs espèces, forme, noms, temperaments, vertus, et operations, traduite du bas Allemand en Francois par Ch. de l'Ecluse." Of this rare work Seguier knew a copy in the library of the physician Falconet in Paris. Caspar Bauhin used a copy, 1623.

Clusius' "Histoire" contained two Aster descriptions, his "*Aster Attticus*" (= *A. Amellus* L.) and his "*Tripolium*" (= *A. Tripolium* L.); *fide* C. Bauhin.

With the "*Histoire*" Clusius printed a maiden work of his own, his "*Petit Recueil*," both in folio and quarto, according to Pritzel, and forming the last 35 pages of the quarto "Histoire," containing, as Clusius says, descriptions of certain gums, and liquors, woods, fruits, and aromatic products, collected in part from the "*Herbier aleman*" [Cruydeboeck], in part from other authors, ancient and modern.

In 1563–4 Clusius made two journeys to Augsburg; returning, he traveled through Belgium, France, Spain and Portugal, from the Pyrenees to Gibraltar, Valencia to Lisbon; in 1564 he was in Lisbon observing the Dragon's-blood tree in bloom; in April, 1565, he was making observations in Valencia; and his immense activity in this journey arouses the more wonder, as Meyer remarks, when we remember that in the neighborhood of Gibraltar through a fall from his horse he had broken his right arm. The results of the journey included his *Aster Atticus supinus* (= *Asteriscus maritimus*, Moench) which he found in Castile—"*sponte in quibusdam Castelle locis.*" These results were published in his *Rariorum... per Hispanias* at the Plantin press at Antwerp in 1576, 11 years later; there was too much new for immediate determination or publication, and Clusius always took time for mature digestion of his novelties before he published. Exigencies of the printing house and the absence of Clusius from Antwerp to Vienna for the three

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It was also issued with fuller title in quarto the same year by the same house, if Pritzel is correct, who gives the title as "*Histoire* des plantes, en laquelle est contenue la description entière des plantes, c'est a dire leurs especes, forme, noms, temperament, vertus et operations: non seulement de celles qui croissont en ce pays, mais aussi des autres etrangères, qui viennent en usage de medicine. Nouvellement traduite de bas aleman en françois par Charles de l'Ecluse," 584 p.

Dodoens furnished a dedicatory epistle, in Latin, calling it his second edition, though translated from the first (1554), because, as he says, "We [the translator and I] have revised everything, changed many, transferred some; we have increased the whole work by no small addition, and we add figures of many plants never yet pictured so far as I know." Evidently, changing as he does from plural to singular, his use of the plural was intentional, to include Clusius in the authorship of the additions.

A third issue, the figures only without text, followed at Antwerp in 1560 in octavo, *fide* C. Bauhin and also J. Ray; though questioned by Seguier.

years previous to publication, added to the delay. About 300 new or remarkable plants were observed by him during that Spanish journey of 1564–5, over two-thirds as many as the entire flora recorded by Theophrastus or bequeathed to the Renaissance by the fifteenth century herbals; and 299 figures of new or rare plants were counted by Treviranus in this volume on Spain.*

Again returning to Belgium and remaining chiefly at Antwerp, Clusius was doubtless busily engaged for some time in working up the details of his Spanish journey; in 1571 he was in Paris again, and went to London; in 1572 he was in Belgium once more, probably making then his translation of Garcia ab Horta from the Portuguese,† and in 1573 he went to Vienna under invitation of Maximilan II to take charge of the Imperial Botanical Garden, which he enriched with many rare plants; was for a time in Prague, was raised to the nobility by his emperor, and was retained for some time in the same place by his successor Rudolf II, being in all for 14 years in charge of the Vienna Garden, 1573–1587.

His friends at Vienna included the esteemed royal historiographer Sambricius, the royal physicians Crato and Julius Alexandrinus, and also Dodoens, his Flemish master, with whom he had elaborated the "Histoire des Plantes" in 1557, and who now came to Vienna as court physician for 1576–79.

While at Vienna Clusius continued with unwearied zeal his search for new plants, travelling over all Austria and Hungary, and going twice to England, a fruit of his last journey being his acquaintance with Sir Francis Drake, the "Franc. Drake Esq. Anglus" of Clusius' references, through whose means he afterwards secured many rare exotics. A result of the journey through Austria-Hungary was his volume on the Rare Plants of

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* Of this rare volume, which Meyer endeavered in vain to secure, Pritzel notes the sale of a copy at 8 francs in 1845 by A. Meilhac. Its full title was "*Rariorum* aliquot stirpium per Hispanias observatarum historia, libris duobus expressa, ad Maximilian II, Imperatorem," 1576, octavo, 529 pp.

† "*Aromatum* Simplicium atque Medicamentorum apud Indos nascentium Historia, Lusitanica lingua scripta per Garciam ab Horta, Latine in epitomen contracta a Car-Clusio, cum iconibus," Antwerp, 1574, Oct.; 30 figures; reissued 1579, 1593, 1605; with separate issue of Clusius' Notes 1582, together with descriptions of exotics sent him by Sir Francis Drake.

Austria,* published at the Plantin press, like his preceding and succeeding works, Antwerp, 1583, with 364 figures, a work alike honorable to the author in arrangement, treatment and drawing, but miserably mutilated in the printing which went on at Antwerp while the author was in Vienna. Clusius was so ashamed of the appearance of his book that he bemoaned it bitterly (in a letter printed by Treviranus † in 1830) and formed the plan to put forth a new and rectified edition, combining his two works on the Spanish and Pannonian plants, a plan which was realized 18 years later in his *Rariorum plantarum historia* of 1601. ‡

After retirement for five or six years, or since 1587, in Frankfort, Clusius' next and last removal was to Leyden, where in 1593 when 67 he was professor at the university and lived and worked in ceaseless activity till the end, at the age of 84, Apr. 1609; accomplishing the publication, during his life at Leyden, of the two great and comprehensive works, his "*Rariorum* ... *his-*

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* "*Rariorum* aliquot stirpium per Pannoniam, Austriam et vicinas quandam provincias observatarum historia, quatuor libris expresse." 766 p. Again next year, 1584, with addition of Beithius "Stirpium nomenclator Pannonicus." Of this, Rariorum, Trew, Trevianus and Meyer had copies; the sale of a copy at 7 fr. by A. Meilhac, 1845, is noticed by Pritzel.

† Christian Ludolf Treviranus, who edited at Leipsic in 1830, the Unpublished Letters of Clusius, and of Gesner, with his own notes and preface, an octavo of 62 p. bearing title "Caroli Clusii et Conradi Gesneri Epistolae ineditae."

‡ He had long been suffering from bitter adversity at Vienna, of which we learn from the late publication of his letters by Treviranus. He and his family were devoted to Protestantism, in following which faith his uncle came to the scaffold, and his father had his whole estate confiscated. The botanist struggled to put his father again in his earlier circumstances, "to give all back to him which had been taken from him," lived long in such poverty himself that while at Vienna he was not once able to pay his house rent when due, and finally was reduced, in the straitest circumstances of his life, to appeal to his friend Thomas Rhedinger for the loan of 50 thalers. Here in 1581 he also had the misfortune to get his foot out of joint and to break an ankle bone. Then followed religious persecution, for Rudolf II. as he grew older began, says Meyer, to drive out all the Protestants,—whom his father had employed without questioning their belief. Weary of the court, Clusius left Vienna forever in 1587, and lived at Frankfort, where he obtained a life-annuity from William IV., Landgrave of Hesse, but even here his fatalities continued; he had the misfortune to dislocate his hip, and unskillful handling of his hurt made a cripple thereafter, so that as Meyer remarks, "he who was accustomed to go up mountains and climb the rocks now from this time had to go upon two crutches; so that he came into a sedentary life and his health declined in Germany; only his thoughts' activities and his Geist preserved him into highest age with untroubled freshness."

toria," * and his "*Exotics*," † both folios produced at the Plantin press at Antwerp, and of which Meyer remarks: These two works give Clusius his reputation.

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* "*Rariorum* plantarum historia," Antwerp, at the Plantin press by Joannes Moretus, 1601, folio; 712 p., 1146 figures, including all those of his Spanish and Pannonian plants. Copies; *ex libr.* Bu.; another is just secured, June 1902, by Libr. N. Y. Bot. Garden. This work includes the following:

(*a*) Republication of the plants of his "*Rariorum...Hispanias*," 1576, and his "*Rariorum...Pannonias*," 1583, the species redistributed, often redescribed and renamed, with new arrangement expressing affinities, and many new species added; in 6 books; these 3 first books with 364 pp.

(*b*) Continuation of the same, being the 3 remaining books with pages lettered, not numbered; Pannonian plants especially but so treated as to bring in their Spanish allies here; beginning, book IV, with "*Sed* nec Scabiosarum et Asterum, aliarumque quarundam illis similium, inelegantes sunt flores,"—"on account of which book IV shall be devoted to them and others;" "Aster, Cap. VII," following on p. xii.

(*c*) "*Fungorum* in Pannoniis observatarum historia," or "Commentariolum de fungis," "a wholly new work, and the first printed which treats of fungi," *Meyer*, 4: 357. Some good figures are from Lobel. It forms pages cclxi—ccxcv.

(*d*) p. ccxcvi, "*Epistolae* Honorii Belli," to Clusius, on various plants, — to 1597.

(*e*) cccxv, "*Epistolaa* Thobiae Roelsii," another physician, to Clusius, on plants.

(*f*) cccxxi, *Descriptio* Montis Baldi," 26 pages, translated into Latin by Clusius; from the Italian of Joannes Pona which had been printed at Verona 1595 in quarto.

Supplements to this book occur in Clusius' *Exotics*, 1605, and *Curae*, 1611.

† "*Exoticorum* libri decem," 1605, folio, about 800 p., including

(*a*) Six books of Exotics wholly by Clusius, which include besides plants, fruits and barks, birds also and beasts, fishes, corals, etc.

(*b*) Books 7 and 8, a reprint of Clusius' abridged translation of Garcia ab Horta's Spices of India, from the Portuguese: with figures and notes by Clusius and also "those of an unknown orientalist." *Meyer*.

(*c*) Book 9, a reprint of Clusius' translation from the Spanish of Christophorus a Costa, this being its 3d edn., the others separate, 1582 and 1593, both from the Plantin press, and octavo.

(*d*) Book 10, a reprint of Clusius' translation from the Spanish of Nicolaus Monardes' great work on West Indian and South American drugs; entitled "Simplicium medicamentorum ex novo orbe delatorum historia, ... IV editio, auctior." The original work was first published at Seville, 1569, as "Historia medicinal de...Indias occidentales," with posthumous third part, 1580. Clusius translated the original two parts into Latin in 1573, printing them the next year; and the third part 1581, printing it 1582; reprinting the three, 1593, 1597, and now as this Book 10 of his Exotica: with figures.

(*e*) Three other books of Monardes on "secret medicine" translated from the Spanish into Latin by Clusius; bk. 1, on lapis Bezoar and herba Scorzonera, bk. 2 on iron, bk. 3 on snow. Added, are translations by Clusius from Monardes on *Rosa* and on *Citrus*. Also, an appendix to Clusius' *Rariorum ... historia*.

(*f*) Clusius' translation from the French of Bellonius' (Belon) *Observations* in Greece and the East, in three books, again with notes by the anonymous orientalist; with addition of Clusius' translation of Bellonius' tract "*De neglecta* plantarum cultura," which Clusius had first printed in 1589.

One posthumous work followed in 1611, his "Curae posteriores," * folio and quarto, from the Plantin press, chiefly an appendix to the two preceding works of 1601 and 1605, with a biography and funeral oration by Everardus Vorstius; with 27 new figures (*Seguier*).

Another posthumous publication may be considered that of Clusius' and Gesner's Epistles, by Treviranus, in 1830; see p. 409.

Another also, 1843, by H. W. de Vriese, in Dutch, at Leyden, an octavo tract of 14 pages, on a collection of Clusius' MS. in his own hand, preserved in the library of the Leyden High School.

Clusius' Attainments.—Of Clusius, Meyer gives the following discriminating and appreciative summary (which I condense in translating): "He was a man of undoubted talent, extraordinary memory, and all-embracing culture. He had a foundation knowledge of the old as well as the newest languages. He had studied law and medicine. He had made very earnest theological studies at Wittenberg, and his historical and geographical knowledge was remarkable. Culture and ability as an artist is exhibited in his plants of Spain, etc., and a mind for poesie in his continued friendship with one of the greatest modern Latin poets, Peter Lotichius, with whom he was brought close in Montpellier and among whose works there lie sheltered many an epistle and poem addressed to Clusius.

"No predecessor or contemporary has enriched the knowledge of plants more with new discoveries, or had set forth and described his discoveries with such ability.

"He carried his true researches in natural history to a higher point than that of the older synonyms with which others filled their books. Yet he lacked not in the botany of the ancients, and added many identifications.

"All that Clusius added to botany is in his two volumes of 1601 and 1605; but very few botanists have filled so few works with so much."

* Full title translated, "*Last Labors;* or New Descriptions of many plants before unknown or undescribed, and of some foreign animals, by which also all of his own works and the others translated by him are augmented and illustrated. To which is added separately the biography and funeral oration by Everard Vorst," Antwerp, 1611, fol. 71 + 24 p., with wood cuts; and reissued by the same house the same year in quarto, 134 + 39 p., with the figures. Copy *ex. libr.* Meyer.

Summary of Clusius' Works

Translation into French, from Flemish, of Dodoens' *Cruydeboeck*, its 2d edn.; 1557.
Translations into Latin;
of Garcia ab Horta on *Spices* of India; from Portuguese; 1574.
Christopher a Costa on *Spices* of India; from Spanish; 1582.
Monardes on *Remedies* from the West Indies; from Spanish; 1574, parts I and II; 1582, part III; often reprinted.
Monardes, *Briefer writings*, 1605.
Belon, *Observations* in Greece and the East; 1589; from the French of 1554.
Belon, "*De neglecta*, stirpium cultura;" 1589; from the French of 1558.
Original works (or chiefly original); Latin, and from the Plantin press, except the *Petit Recueil*, 35 pages of descriptions of remarkable plant-products, 1557.
Rariorum stirpium per Hispanias, 1576, 529 p.
Rariorum stirpium per Pannoniam, 1583, 766 p.
Rariorum plantarum historia (combination and rearrangement of the preceding), 1601, 712 p.
Exoticorum libri decem, etc., 1605.
Curae posteriores, 1611.
Epistolae, 1830.

Clusius' Chief Contributions to the Knowledge of Aster.—He published 16 different species which went for a time under the name Aster, half of which he described as Asters himself. Only two of them remain in Aster now, *Aster Amellus* L., and *A. alpinus* L.

He was the first to give a clear and recognizable description for *Aster alpinus* L., and he gave it that name which it still bears, calling it in 1583 *Amellus alpinus*, and in 1601 *Aster alpinus coeruleo flore vel γ.*

He was the first to publish clear and definite descriptions for a number of plants, new Asters so-called then and long afterward, which made a considerable part of the Linnean genus Inula.

His figures of his Asters, freely used by his publisher in works of others, and often copied, show great skill in catching and reproducing the essential in the habit of the plants.

He was fully alive to the complexity of the Aster group; perhaps none but Gesner before him had really felt it, until Lobel, who perceived it probably chiefly as a result of his older friend Clusius' activities. Clusius begins his Asters in the résumé of 1601,* with "*Asteris* non parva est varietas; nam in meis perigrinationibus observatae mihi sunt elegantes quaedam plantae, quae ad illius genera referri posse videntur."

* *Rariorum* historia, book IV, c. vii, p. xii.

He was the most pronounced example that botany had yet known, of the method of alternate exploration, personal field-work alternating with periods occupied by working up and publishing his discoveries.

He tried to collect the vernacular names for his Asters ; with the following results : * "My first species, *Aster Atticus legitimus*, [= Pallenis], was called *Oculus Christi* in the Monspellian land when I was living there (1550); and in Spain (1564), *Bobas*, which I suppose derived from Bubonium, because they heal inguinal tumors with it, there called *bobas;* whence also the Latin name *Inguinalis*. For the rest of the kinds I have never known any common name in the places where they grow, among the inhabitants.

* *Rariorum* historia, book IV, c. vii, p. xvi.

Correlation of the Eight Asters of Clusius

Abbreviations:
A. = Aster.
Att. = Atticus.
Pann. = Pannonicus.
Sp. or *Pan.* for original source in Clusius' Rare Plants of Spain or of Pannonia.
The order adopted is the sequence of species in 1601.

Clusius' First Form.	Clusius' Form in Description of 1601.	Clusius' Form for Corresponding Figure, 1601.	Linnaeus' Equivalent.
A. Att. primus flore luteo *Sp.*	A. Att. legitimus, sive I.	Aster I.	Buphthalmum spinosum.
A. Att. supinus *Sp.*	A. supinus sive II.	A. Aster II. supinus.	Buphthalmum maritimum.
A. Pann. major *Pan.* vel A. primus *Pan.*	A. Pann. major, sive III.	A. iii, Austriacus i.	Buphthalmum salicifolium.
A. Att. secundus *Pan.*	A. Pann. saligneo foliis, sive A. III.	A. iiii, Austriacus ii.	Inula salicina.
A. Pann. tertius *Pan.*	A. lanuginoso folio, sive v. A. Pann. subhirsuto salicis folio.	Aster v.	Inula hirta.
A. Att. quartus, *Pan.*	A. angustifolius, sive vi. A. Pann. angustiore folio.	A. vi, Austriacus iv.	Inula ensifolia.
A. quintus, sive Amellus alpinus, qui virgiliano, respondere videtur *Pan.*	A. Alpinus caeruleo flore, sive vii. Amellus alpinus, Amellus Virgilii.	A. vii, Austriacus v.	Aster alpinus.
A. Att. sive A. Att. Italorum, *Pan.*	A. caeruleus Italorum, sive viii. duorum generum (of broad and narrow leaves).	A. viii, Italorum et Fuchsii. Oculus Christi.	A. Amellus.

Correlation of the Eight Other Aster Names of Clusius. Plants by Some Contemporaries Deemed Asters

Clusius' First Form.	Clusius' Form in 1601.	Aster-names, etc., Among Other Writers.	Linnaeus' Equivalent.
Conyza 3 vulgaris *Pan.*	Conyza media vulgaris.	Asteri, etc., of *Cesalpino*, 1583; Conyza palustris I, *C. Bauhin.* Aster pratensis, etc., *Tourn.* Aster dysentericus *Scopoli.*	Inula dysenterica.
Conyza 3 Pannonica *Pan.*	Conyza tertia Austrica, legitima forte Dioscoridis.	Conyza VII, [near of kin to the preceding] *C. Bauhin*, 1623. Aster montanus, etc., *J. Bauhin*, 1650.	Inula Oculus Christi.
Planta Bantanica *Exoticorum*, 1605.	——	Conyza V., *C. Bauhin.*	?
Conyza minor Boetica *Curae Posteriores*, 1611.	——	Conyza IV, *C. Bauhin*, Aster palustris, etc., *Barrelier* (1606–1673; publ. 1714).	Inula Pulicaria.
Conyza minor *Sp.*	Conyza minor.	Conyza III, *C. Bauhin*, 1623.	Erigeron graveolens.
Conyza major *Sp.*	——	Conyza I, *C. Bauhin*, Aster fol. serratis, etc., *Linnaeus*, 1737.	Erigeron viscosum.
(In 1601)	Conyza major Dioscoridis Rauwolfii.	Conyza II, *C. Bauhin*, Conyza Dioscoridis *Rauwolf*, 1583.	Baccharis Dioscoridis.
Buphthalmum vulgare *Pan.*	Buphthalmum vulgare.	Aster Atticus, *Cordus'* figure as supplied by *Gesner*, 1561.	Anthemis tinctoria.

ASTER AMONG CLUSIUS' CONTEMPORARIES PRIOR TO 1600

LXXXIX. CESALPINO

Cesalpino, Andrea, whose *De plantis, libr. XVI* (Florence, 1583; 671 p.) ushered in a new era in botany *—due to the philosophical conceptions formulated in the 50 pages of its preface; after which the XVI books of descriptions of known plants follows. Cesalpino lived 1519–1603; was of Arezzo, professor at Pisa, and physician to Pope Clement VIII. He mentions by the following names, *fide* Bauhin, 7 Asters or plants then so called:

Aster acticus (= *Pallenis spinosa* Cass.).

Aster acticus alpinus foliolis luteis (= *Inula montana* L.).

Aster acticus tertius (= *Buphthalmum grandiflorum* L.).

Aster actico similis altera quae Cunilago (*Inula dysenterica* L.).

Incensaria (= *Inula odora* L.).

Anthyllis altera (= *Aster acris* L., prob.).

Anthyllidi secunda similis (= *Aster alpinus* L., prob.).

XC. WOLFF

Wolff, Caspar, literary heir to Gesner; his "*De Stirpium Collectione*," Zurich, 1587, pages 61 and 141, has one aster only.

"Aster Atticus Fuchsii, floret Angusto et Septembri" (= *Aster Amellus* L.).

XCI. THALIUS

Thal,—Johannes Thalius, author of one of the first of local floras, his *Sylva Hercynia*, Frankfort, 1588, 133 p., printed with Camerarius' *Hortus medicus* (*ex libr.* E. L. Greene); has,

"Aster Atticus caeruleus, paucis tamen in locis" (= *Aster Amellus* L.).

"Amellus Virgilii putatus" (= Caltha Virgilii of Bock, Populago of Tabernaemontanus, Chamaeleuce of Anguillara, Chelidonia palustris of Cordus, etc.) (= *Caltha palustris* L. and before of Gesner, Dodoens, Pena and Lobel, Clusius, Gerarde, C. Bauhin, etc.).

* The same year, 1583, that Clusius, publishing his six Pannonian Asters, inaugurated the new era of Aster history.

XCII. TABERNAEMONTANUS

Tabernaemontanus, Jacobus Theodorus, 1520–1590; physician at Neuwhausen, Pfalz; whose *Neuw Kreuterbuch* printed at Frankfort by Basseus, 1588, with 2,087 figures, included the following names for plants then commonly esteemed Asters:

Bubonium luteum (= *Inula salicina* L.).
Aster flore luteo (= *Inula hirta* L.).
Aster atticus Massilioticus (= *Pallenis spinosa* L.).
Aster montanus luteus mas (= *Inula montana* L.).
Aster montanus luteus femina (= *Inula montana* L.).

XCIII. COLONNA

Colonna,— Fabius Columna — in his *Ecphrasis*, Rome, 1616, and perhaps in part in his *Phytobasanos*, Naples, 1592, had:

"Aster cernuus" (= *Carpesium cernuum* L.).
"Asteris altera species Apula, an Baccharis (= *Inula odora* L.).
"Aster Peruanus" (= *Helianthus tuberosus* L.).
"Amellus" (*Aster Amellus* L.).
"Amellus montanus" (= *Erigeron acre* L.).
"Amellus palustris" (= *Aster Tripolium* L.).

XCIV. DALECHAMP

Dalechamp, Jacques, 1512–1588, whose "*Historia* generalis plantarum libris 18 per Joannem Molinaeum collecta," Leyden, 1587 (*ex libr.* Bu.) figures over 2,200 plants, including 9 or 12 by name of Aster:

"Aster Atticus caeruleus vulgaris" (= *A. Amellus* L.).
"Aster Atticus alter, Oculus Christi" (= *Pallenis spinosa* Cass.).
"Aster luteus alter, Oculus Christi minor" (= ?).
"Aster luteus sive Oculus Christi minor" (= *Inula montana* L.).
"Aster montanus hirsutus" (= *Inula montana* L.).
"Aster conyzoides" (= *Buphthalmum grandiflorum* L.).
"Aster atticus supinus" (= *Asteriscus maritimus* Moench.).
"Aster purpureus montanus (= *Aster alpinus* L.).
"Tripolium" (= *Aster Tripolium* L.).
"Tripolium minus" (= *Aster Tripolium* L.).
"Bellis lutea" (*Inula salicina* L.).

"Aster montanus luteus" (=?).

"Asterias sive Stellaria Dalechampii" (= Spergula?).

XCV. ALPINUS

Alpinus (Prosper Alpino), 1553–1617, in his "*De plantis Aegyptis* liber, cum Medicina Aegyptorum," Venice, 1592, has one plant which was commonly called an Aster in that century, his "Baccharis vel Carpesium" (= *Carpesium cernuum* L.).

XCVI. GERARDE

Gerarde—John Gerarde, 1545–1607; well-known author of the "*Herball* or Generall Historie of Plantes. Gathered by John Gerarde of London, Master in Chirurgerie. Imprinted at London by John Norton, 1597." He mentions, chapter 125, pp. 391–93, "*Of Starrewort*," 11 kinds of Aster, by number, not by name; with four figures, which bear the following botanical names:

"Aster Atticus" (= *Pallenis spinosa* Cass.).

"Aster Italorum" (= *Aster Amellus* L.).

"Aster montanus" (= *Inula montana* L.).

"Aster hirsutus" (= *Inula hirta* L.).

Turner, author of the first great English Herball, 1551–1558, many years before Gerarde, had omitted Aster, for some reason not apparent. With Gerarde, English publications of Asters began, though but feebly; the following century was to witness, in Morison and Ray, a principal localization of Aster studies in England, and the next. the 18th, was to see it transferred to France and Germany.

POLYTYPIC ASTER

After the establishment of Aster as a polytypic genus by Clusius, 1576–1601, etc., a rapid increase in new species followed, species then placed in Aster, but since assigned to *Conyza*, *Inula*, *Pulicaria*, etc. The two centuries following have already been summarized, pages 16–18, as the Clusian and Linnaean periods of Aster history; the former including, and the latter excluding, all yellow-rayed relatives. Into these periods it is not at present our purpose to enter; the details of Aster history, as already remarked, are better pursued, after Clusius, species by species.

ADDENDA

It happens that many works or editions treated in the preceding pages have just become accessible at New York by shipments of recent date (November 7, 1902). They occasion the following addenda;

Add *ex bibl. N. Y. Bot. Garden* in relation to the following:

P. 186. Ibn Alawwâm *De Agricultura*, Mullet's Fr. tr., Paris, 1864–7.

P. 199. Macer, *De virtutibus*, a valuable paper MS. volume of the 15th century; without figures.

P. 200. Macer, *De virtutibus*, Pictorius' Lat. edn. of 1559, as reprinted at Basle, 1581.

P. 310. *Herbolario*, Venice, 1540.

P. 317. *Ortus Sanitatis*, early edn., perhaps of Strasburg and in 1498.

P. 398. Dodoens, *De Frugum*, 1552.

P. 339. Dodoens, *Trium priorum ··· imagines*, 1553.

P. 399. Dodoens, *Florum et coronariorum ··· historia*, 1568.

P. 399, 406. Clusius, *Histoire des Plantes* (being Fr. tr. of Dodoens' Cruydeboeck), 1557.

P. 407. Clusius, *Petit Recueil*, 1557.

Add *ex libr. Bu.* as follows:

P. 344. Bock, *De Stirpium*, 1st edn. of Kyber's Lat. tr., 1552.

P. 398. Dodoens, *De Frugum*, 1552.

P. 399. Dodoens, *Trium priorum ··· imagines*, 1553.

P. 399. Dodoens, *Posteriorum trium ··· imagines*, 1554.

P. 410. Clusius, *Exoticorum*, 1605.

Other notable recent arrivals, although not the first in N. Y., include the following additions to the Libr. of the N. Y. Bot. Garden: the *Magistri Salernitani*, 1901; Sansovino's Ital. tr. of Crescenzi's *Ruralium*, 1561; the *Aggregator Practicus* of Venice, 1509; and Clusius' *Rariorum plantarum historia*, 1601. The last is especially noteworthy as being the copy given by Clusius himself to his son Jacobus, *fide* MS. note by the latter on the title page.

ERRATA

Page 13, line 22, read "*Inula dysenterica* L."

Page 14, line 23, read "*Anthemis tinctoria* L."

Page 15, line 9 from end, read "*flore luteo.*"

Page 71, lines 6 and 5 from end, read "Estoille" and "Estrellada."

Page 115, line 5 read "Urbinus."

Page 126, line 3 from end, read "Theocritus'."

Page 132, last line should read "1492, fol. 318; also in his edn. 1517, with notes on the *Hortulus* by Badius Ascensius, which notes again appear, folio 371, in the reprint of 1586."

Page 172, line 11, read "baccas eis dabas."

Page 183, line 31, read "Tortuosiensis."

Page 189, line 13, read "*Asteriscus,*" not "*Asterion.*"

Page 197, line 7 from end, read "enclosed," not "endorsed."

Page 228, line 3 from end, read "Preposito."

Page 266, lines 9 and 5 from end, read "Ortus Sanitatis" and "sabar."

Page 267, line 10, read "Domiani," not "Damiani"; line 17, read "Alphita," not "Alphite."

Page 269, end, read "hare," not "hair."

Page 275, line 3 from end, read "*Geranium,*" not "*Geum.*"

Page 283, line 19, read "Sacro Bosco," not "Sancto Bosco."

Page 287, line 5 from end, read "Ranzovius."

Page 291, note ‡, read "*Excoecaria Agalocha* L."

Page 322, line 13, read "Ynguirialis," not "Unguirialis."

Page 324, line 1, instead of "only," read "only (except as reprinted in the *Luminare Majus*)."

Page 329, line 3 from end, read "in Dioscoridem."

Page 332, line 8 from end, read "Distillierbuch."

Page 373, line 5, read "πυρςυρου̃ν."

Page 375, line 3 from end, read "Sylvaticus."

Page 381, line 17, read "Pena and Lobel."

Page 407, heading, read "Clusius," not "Clausius."

Page 414, middle, from "A Aster 11, supinus," omit "A"; and in name "A. Pann-saligneo foliis," read "folio."

INDEX OF SUBJECTS, AUTHORS AND SPECIES

EXPLANATIONS

With a view to promote the instant serviceableness of this index, species-equivalents connecting the ancient with the modern botany are very commonly inserted; analytic entries are provided for such authors as have been treated in special detail; and all classes of entries, whether of person, place, plant, book or subject-matter, are ranked in one alphabetical series, instead of separate indices—but are distinguished by type, as follows:

Subjects treated and miscellaneous entries are in Roman type.

Species and other plant-names are in italics.

Names of authors are in small capitals.

Titles of works of uncertain or less familiar authorship are entered in small capitals italicized. For other titles of books see the body of the work under the respective authors.

Page-numbers which refer to the more detailed treatment, are set in black-faced type, or simply precede the other numbers, if the details given are few.

The abbreviation *A. Att.* is used for the *Aster Atticus* of Dioscorides and of Renaissance botany, the *Aster Amellus* of Linnaeus.

Plants indexed which have had a special relation to *Aster Atticus* are thus indicated:

"= A. Att.," after plant-names which have been used as equivalents or partial equivalents for Aster Atticus.

"Not A. Att.," after plant-names which have been by some writer confused in synonymy with *Aster Atticus*.

"Used as A. Att.," after plants which replace Aster in certain authors, not from any tangle of synonymy but from similarity of reputed properties.

The index is intended to cover all such plant-names as seem likely to be sought for, including all members of the Compositae which are mentioned in the text; also all little-known authors which are so mentioned; but no attempt is made to include all references to authors like Dioscorides, Pliny, or Meyer, which have occurred constantly throughout the volume.

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